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PUBLICATIONS

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LEANDER McCORMICK OBSERVATORY

OF THE

UNIVERSITY OF VIRGINIA

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VOLUME XI, PART XX

RELATIVE PROPER MOTIONS OF LONG-PERIOD VARIABLE STARS

HARLD L. ALDEN AND V. OSVALDS

VOLUME XI, PART XXI

ABSOLUTE PROPER MOTIONS

SECULAR PARALLAXES, ABSOLUTE MAGNITUDES

AND SPACE VELOCITIES OF MIRA TYPE VARIABLES

V. OSVALDS AND A. MARGUERITE RISLEY

CHARLOTTESVILLE, VIRGINIA

1961

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Note to Librarians:

In the Publications of the Leander McCormick Observatory, Vol. XI, part XIX the pages are numbered 148-153 (this is the pagination in A.J. v. 65 of which this part is a reprint); please change the page numbers to 103-108.

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RELATIVE PROPER MOTIONS OF LONG-PERIOD VARIABLE STARS

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University of Virginia
Charlottesville, Virginia

Abstract. On the plates taken with the 26-inch McCormick visual refractor and with the 26-inch Yale Southern Station photographic refractor the relative positions of 366 Long-period variable stars have been measured and their relative proper motions derived. For 22 variables both McCormick and Yale plates were available and the motions were derived in duplicate. They served for combining the results.

Introduction.

Although Long-period variables with their large variation of brightness have been observed for over 350 years the statistical studies of their physical and kinematical properties are of very recent date. In 1928, when preparations for this investigation were made, very little was known about them, but, in the meantime, with the possibility that Mira variables form a link between Populations I and II, considerable interest has been attached to this problem. A number of researchers have investigated various characteristics of Mira variables, e.g., their apparent distribution on the celestial sphere (Ahnert, 1939), their spectra (Merrill, 1940), light curves and apparent magnitudes (Campbell, 1955), radical velocities (Merrill, 1941), distances (Oort and Van Tulder, 1942), absolute magnitude (Miczaika, 1946, a compilation of results); distances, absolute magnitudes, space velocities (Wilson and Merrill, 1942; Kulikovsky, 1948; Safronov, 1950). In many of these papers the lack of good proper motions has been emphasized.

In order to obtain good proper motions for any statistical study of Long-period variables, most of these stars known in 1928 and observable from here were put on the McCormick proper motion program for obtaining a set of first epoch photographs. A fairly uniform distribution down to —30° declination was sought. To improve the distribution further, the senior author (H. L. A.) cooperated in taking the plates for the southern variables while he was in charge of the Yale Southern Station in Johannesburg, South Africa.

The number of the known variables has increased substantially since 1928 and by now our sample, which includes most of the brighter Mira variables, makes up only one tenth of the known variables of this type. The number of variables being limited by the available first epoch plates, we have no other choice but to use this sample and hope that it is useful and satisfactorily represents the properties of the Mira variables as a whole.

PHOTOGRAPHIC MATERIAL

McCormick plates

Some 450 longperiod variables had been chosen and the first epoch plates (size 12.7 x 20.3 cm) had been taken with the 26-inch visual refractor between November, 1928 and October, 1937. As time went on and more observations on their variability had been accumulated by variable star observers, many of them were found to be semiregular or irregular variables.

At the time of the second epoch 303 variables were ruled acceptable and plates of them were taken between October, 1949 and August, 1956. As a rule, a pair of plates with 2 exposures per plate was obtained of every variable at each epoch. At the first epoch the two plates were taken either on one piece of glass or on two separate pieces. At the second epoch they were invariably taken on one piece of glass reversed between two pairs of exposures, in order to minimize the effects of a possible film shift.

Although the actual selection of reference stars was performed later, their apparent mean magnitude was expected to be around 10.5 photovisual. In order to avoid a possible magnitude error in the position of the variable, the magnitude of the latter was reduced to 10.5 by means of a rotating sector.

Yale plates.

A total of 63 variables between +30° and —80° Declination had been photographed by the senior author (H. L. A.) at the Yale University Observatory Southern Station: the first epoch between May, 1929 and February, 1932 and the second from March, 1944 to April, 1945. The instrument used was the 26-inch photographic refractor with a coarse grating: 16.5 x 21.6 cm plates were used and 3 images per plate was a rule. A rotating sector was used to reduce the brightness of the variable to approximately 12th photographic magnitude.

Figure 1 shows the galactic distribution of the 345 variables for which the motions have been derived.

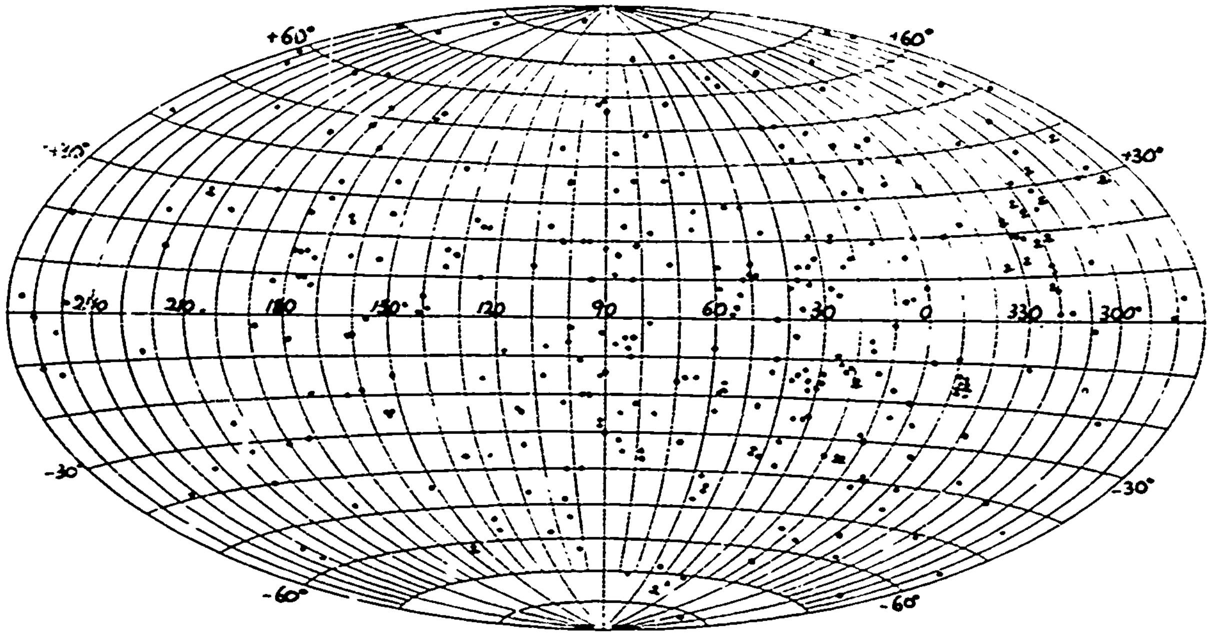

FIGURE 1. GALACTIC DISTRIBUTION OF MIRA VARIABLES ON THE McCORMICK PROGRAM
The underlined dots represent the stars common to the McCormick and Yale sets.

MEASUREMENT AND REDUCTION OF PLATES

Reference stars: McCormick plates.

In order to minimize the chance of picking a star with a much larger than average proper motion as a comparison star, an effort had been made to select early spectral type stars. In higher galactic latitudes it was increasingly difficult. Therefore, whenever possible, at least stars with known spectra were selected. All McCormick regions were identified on our spectral plates taken with the 10-inch Cooke camera and the spectral type of the field stars classified.

Since the probable error caused by cosmical dispersion of the measured position of reference stars increases with increasing galactic latitude, more reference stars are needed for variables at higher galactic latitudes. An a priori computation by Dr. A. N. Vyssotsky based on statistical mean values and with an epoch difference of 20 years showed that an accuracy of $\pm 0\rlap{.}''004$ for the relative motion of a variable would be obtained by using the following number of reference stars:

At galactic latitudes	No. of reference stars
0° to ±20°	4
±21° to ±40°	10
±41° to ±90°	16

In selecting the reference stars the following rules were observed as closely as possible:

a/ select stars of early type or at least with known spectra

b/ select 4, 8 or 12 stars distributed symmetrically in all four quadrants for the variables within the galactic latitudes 0° to ±20°, ±21° to ±40°, ±41° to ±90° respectively.

c/ the mean magnitude of the reference stars should be the same as the mean magnitude of the variable from all the plates.

Yale plates.

For the Yale plates the general rules were the same, except that at the time of the selection of reference stars their spectra were neither known nor anticipated. It was only later that we were lucky to obtain spectra for about 60% of the Yale comparison stars. So, rule a/ could not be observed and c/ was deliberately not followed, but fainter stars were selected in order to keep low the chance of picking stars with large proper motions for reference.

Measuring of plates.

All the plates were measured on either a direct microscope Gaertner long screw machine or on a

projection machine of very similar model. Screw errors and the errors of the V-way of these two machines were not applied since they are the same for the measurements at both epochs.

The plates were oriented to the equator of 1900.0 by the usual expression

$$\Delta\theta = -0^\circ\!.0056 \sin\alpha \sec\delta \; (t_{obs} - t_{1900})$$

The scale of the McCormick plates is 1 mm = 20″.75, of the Yale plates 1 mm = 18″.82.

Reduction of the measurements.

For obtaining the relative proper motions of the variables the method of combining the coefficients was used. This is more convenient than a least squares solution and gives comparable accuracy. A number of persons participated in measuring and reducing the plates. In the summary of the participants and their contributions (see the following list) the word region means "a field around a variable star photographed at two epochs, one pair of plates at each epoch."

McCormick Plates

Name	Number of regions Measured	Reduced
Mrs. Z. Osvalds	106	147
Miss F. Dale	55	4
Mrs. M. Martin	41	0
Miss P. V. Ashwell	37	39
B. J. Spenceley	23	0
Mrs. Ch. Yates	15	21
J. Vining	14	0
Miss J. McNutt	7	0
A. S. Nist	3	0
J. A. Winfrey	3	1
H. L. Alden	0	82
V. Osvalds	0	10
Total	304	304

Yale Plates

Name	Measured	Reduced
Mrs. Z. Osvalds	62	62
B. J. Spenceley	1	0
H. L. Alden	0	1
Total	63	63

The means of the measurements and the work sheets of computation of the relative proper motion have been microfilmed and could be duplicated if needed.

THE PROPER MOTION CATALOGUE

The catalogue contains the relative motions of 304 stars on McCormick plates and of 63 on Yale plates. Of these stars 22 are common, and both McCormick and Yale proper motions are given. All Yale motions are designated by a letter (Y) on the second line in the regions concerned. Two stars: Z Aurigae and SS Cygni, although not used in the discussion, are included in this catalogue, simply because their motions had been measured.

The catalogue contains the relative proper motions of 345 variables and their reference stars and the corrections which reduce the relative motions to the absolute FK_3 system.

The arrangement of the catalogue is this: the variables are in the sequence of their right ascension for 1900. Each page is divided into three columns and the regions of the variables run vertically. At the top of each column the headings refer to data beginning with the 4th line in each region. The headings are:

No. — the serial number for reference stars.

V — the variable.

x, y — the rectangular coordinates in R.A. and Decl. referred to the mean of the reference stars; in millimeters.

μ_α, μ_δ — the relative annual proper motions in units of 0″.001.

m — for the reference stars: the photovisual magnitude; for the variable: the mean of the magnitudes derived from all the plates.

Sp — spectrum

Frequently the magnitude of the variable has been reduced by the rotating sector to match the mean magnitude of all the reference stars. For more detailed information on magnitudes and spectra see section "Reduction of Relative Motions to Absolute" in the following paper.

The spectra of the variables were taken, whenever available, from the General Catalogue of Variable Stars (Russian) 2nd ed., (1958). For many of the variables the range in spectral type has been given.

For the following variables the spectra were determined on the McCormick spectral plates: RV Cep, 7 Cep, RR Cep, R Lup and SZ And by V. Osvalds; ST Gem and UZ Cep by Dr. A. N. Vyssotsky, and for RS Leo it was kindly communicated by Dr. P. C. Keenan in a letter.

Spectra of reference stars were determined on either McCormick or Harvard spectral plates (see details in the section, "Reduction of Relative Motions to Absolute" by Osvalds and Risley). As usual, a colon after the spectral type indicates a less reliable determination. Even less dependable are spectra given in small letters. The classification of the latter has been based on the general intensity distribution of the continuum rather than on specific spectral lines.

The first three lines of each region refer to the variable only.

The first line gives the name, the period in days, the type, and the range of magnitude (photographic blue magnitudes are underlined). All these data are from the General Catalogue of Variable Stars.

The second line: R.A. and Decl. (1900) from the General Catalogue of Variable Stars and galactic longitude and latitude taken from Ohlsson's Tables (1932).

The third line gives the correction to be applied to the relative proper motion for obtaining the absolute proper motion in R.A. and Decl. The derivation of these corrections has been described by Osvalds and Risley in the section mentioned above.

In several regions with only a few reference stars, it happens that a reference star has a large proper motion. Such a star has been excluded from computing the mean position of reference stars and the plate constants.

The coordinates and the relative motion of such a star have been referred to the means of the rest of the reference stars. Such cases are indicated by putting the coordinates and the components of motion in parenthesis. However, the relative motion of the variable has been referred to the mean motion of all the reference stars.

The regions involved are: X Cet, RR Boo, RS Dra, RR Aqr, R Aqr, W Cet.

Acknowledgements.

The first epoch plates of the McCormick part were obtained by various observers under the guidance of the late Dr. S. A. Mitchell, then the Director of this Observatory. The authors are deeply grateful to Dr. D. Brouwer, the Director of the Yale University Observatory, for letting them use the plates of the Yale Southern Station. They also gratefully acknowledge the work of Mrs. Zenta Osvalds who measured 46% and reduced 57% of the plates, and the help of the other persons who at one time or another participated in the measurement and reduction. Dr. Vyssotsky's a priori computations on the attainable accuracy were useful guides in the selection of the reference stars. The printer's copy of the catalogue was typed by Miss Janet E. Campbell and the remainder by Miss Margaret A. Kerr.

This research was made possible through a grant kindly given to this Observatory by the Office of Naval Research (Contract No. 982700). The printing costs have been paid from the McCormick Fund.

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THE CATALOGUE OF PROPER MOTIONS

follows on pages 115-145

with explanations on pages 113 and 114.

TT Peg 153 SRa 9.3-11.2

$00^h01\overset{m}{.}4$ +26° 32' 79° -35°

No.	X	Y	μ_α	μ_δ	m	Sp
			+10	- 5		
V	+ 1.3	+ 0.9	+ 5	- 2	9.4	M6e
1	-68.9	-38.8	- 3	+ 7	12.4	K0:
2	-60.5	+45.3	- 9	-20	10.2	K5
3	- 5.6	-19.5	+ 3	- 3	11.2	G0
4	- 4.6	+14.2	- 9	+16	10.0	K0
5	+ 6.6	-38.4	+ 5	- 4	11.7	G5
6	+28.8	+13.8	-15	- 1	12.3	...
7	+49.5	-11.9	- 5	0	11.7	G0
8	+54.8	+35.5	+15	+ 5	11.8	A.

RV Cep 272 M 11.5-16

$00^h07\overset{m}{.}7$ +73° 18' 88° +11°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 7	+ 1		
V	- 1.5	- 8.5	- 7	- 3	9.7	M2e
1	-59.9	-10.2	-20	- 3	10.7	A5
2	-35.3	-51.3	+11	- 2	10.8	A0
3	-24.8	+38.0	-43	+ 1	10.7	A2
4	-11.5	+ 8.3	+52	- 6	10.6	F8
5	+15.3	-45.3	+14	- 3	9.9	A2
6	+29.2	+20.8	- 4	+ 1	10.8	K0
7	+39.4	+44.3	+13	- 3	11.0	A5
8	+47.4	- 4.5	- 5	- 2	11.4	A0

S Scl 366 M 6.1-13.6

(Y) $00^h10\overset{m}{.}3$ -32° 36' 323° -82°

No.	X	Y	μ_α	μ_δ	m	Sp
			+13	- 6		
V	+ 2.0	+ 1.5	+31	+15	10.7	M3e M8e
1	-79.8	-61.7	+ 9	3	11.7	g
2	-78.0	+44.9	+ 3	-20	11.5	G
3	-58.1	+47.3	-22	-36	10.8	G
4	-53.3	+30.6	-10	-15	11.0	G
5	-52.6	+57.1	- 1	+ 4	11.9	G
6	-39.3	-16.7	+ 1	+ 1	12.5	
7	-20.4	- 0.3	-21	+ 5	12.0	
8	- 6.7	-54.5	- 3	+23	11.3	g
9	+ 6.4	-52.3	+51	-96	12.2	f.
10	+24.9	+39.9	+ 4	+16	11.5	
11	+41.6	-56.5	-25	- 3	12.3	
12	+50.1	+69.5	-19	+14	11.9	
13	+56.3	-11.4	-23	+21	11.7	g
14	+61.3	- 7.8	+15	+33	11.6	f
15	+71.1	+10.3	+ 1	- 4	11.1	
16	+76.4	-38.2	- 5	+18	11.1	f

T And 280 M 7.7-14.3

$00^h1\overset{m}{.}2$ +26° 27' 84° -35°

No.	X	Y	μ_α	μ_δ	m	Sp
			+13	- 8		
V	- 0.4	- 3.9	-21	+21	9.4	M3e M4e
1	-57.1	-16.4	+17	+ 8	10.8	F2
2	-53.6	+41.8	-15	-11	10.2	F8:
3	-19.3	+45.8	+19	-10	10.7	F8
4	-14.7	+24.8	-21	+13	12.2	..
5	+ 6.7	+34.2	-28	+34	11.2	G0:
6	+36.3	+19.3	+64	-36	10.8	K0.
7	+53.3	+44.9	- 3	-11	9.9	G0
8	+58.4	-13.0	-33	+13	10.2	G0

T Cas 445 M 7.3-12.4

$00^h17\overset{m}{.}8$ +55° 14' 87° - 7°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 7	- 3		
V	+ 5.6	+10.6	+22	- 5	10.9	M6e M8e
1	-54.3	-32.6	- 6	+ 2	10.5	A2
2	+46.5	-22.5	+ 1	- 2	10.3	A5
3	-42.8	+47.9	- 4	+ 2	10.1	A0
4	- 3.2	-37.1	+ 9	- 1	10.9	K0
5	+18.9	+33.1	- 2	+ 4	11.0	K
6	+27.7	-47.9	+ 1	- 1	10.3	A0
7	+48.8	-29.4	- 4	0	10.8	K2
8	+51.4	+43.5	+ 6	- 3	11.1	. .

S Tuc 240 M 8.2-15.0

(Y) $00^h18\overset{m}{.}4$ -62° 14' 274° -55°

No.	X	Y	μ_α	μ_δ	m	Sp
			+15	- 3		
V	+ 5.5	+ 1.4	-15	+ 4	10.5	M3e M5e
1	-74.5	-23.2	+ 4	-71	10.8	G5
2	-63.4	+14.8	-16	+27	10.2	G5
3	-57.2	-55.6	+ 6	+14	10.9	G
4	-54.3	+55.7	-10	- 4	11.8	A
5	+44.9	+56.9	-12	- 2	10.5	G5
6	+43.1	- 8.0	- 4	+25	11.3	A2
7	+21.5	-17.3	-17	- 8	10.8	G5
8	+38.0	-66.3	+ 4	+18	11.6	.
9	+56.1	+51.1	-12	-24	10.9	G
10	+61.4	+11.1	+34	-10	10.7	G0
11	+79.3	+41.4	-16	-20	11.1	G5
12	+81.1	-60.7	+ 6	+ 7	11.8	

R And 409 M 6.1-14.9

$00^h18\overset{m}{.}8$ +38° 01' 85° -24°

No.	X	Y	μ_α	μ_δ	m	Sp
			+12	- 7		
V	- 0.4	+ 2.3	-16	-32	11.8	S5 6e
1	-47.4	+10.6	- 7	- 1	10.4	K5
2	-45.4	+31.5	- 5	+ 6	10.1	G5
3	-29.6	-20.0	+ 4	- 2	10.6	A2
4	-17.1	+ 2.7	+ 8	- 3	9.7	A2
5	+12.0	-29.6	-14	+ 8	11.0	.
6	+16.9	-23.1	+11	- 1	11.6	.
7	+51.0	-24.4	- 1	- 5	11.2	G0
8	+59.6	+52.3	+ 4	- 2	8.8	F0

S Cet 320 M 7.6-14.7

$00^h19\overset{m}{.}0$ -09° 53' 74° -71°

No.	X	Y	μ_α	μ_δ	m	Sp
			-16	- 9		
V	+23.6	- 4.3	+11	+16	10.8	M3e M4e
1	-78.6	+12.6	+15	-26	8.2	K2
2	-76.9	+ 4.4	+15	+19	8.7	K5
3	-57.5	+44.5	-60	- 7	12.4	..
4	-35.0	-27.5	+28	- 5	10.2	G5
5	-26.6	+17.3	-73	+17	11.5	G
6	-13.1	+32.2	-15	- 2	9.9	F5
7	+29.3	-47.7	- 6	+ 8	11.9	..
8	+36.7	-47.8	+16	- 5	11.6	...
9	+40.9	+10.0	0	- 6	10.9	F8
10	+55.4	+44.4	+ 6	- 9	10.0	F8
11	+61.5	+22.9	-14	- 5	10.6	F8
12	+63.9	+23.5	-14	- 7	10.5	F8

YZ And 208 M 11.0-15.5

$00^h22\overset{m}{.}0$ +30° 21' 85° -32°

No.	X	Y	μ_α	μ_δ	m	Sp
			+15	- 9		
V	+ 0.2	- 1.3	+ 1	- 1	10.4	M5e
1	-67.3	- 3.6	+11	-10	9.8	K0
2	-50.2	+26.8	-33	+19	10.2	G0
3	-16.2	-56.5	-12	-16	10.5	G0
4	-10.2	+10.1	+35	+ 8	9.4	A5
5	+12.3	-53.9	-15	-15	9.8	G5
6	+32.9	-23.5	-25	+26	10.3	G0
7	+33.4	-32.4	-14	-12	10.6	F8
8	+65.1	-39.7	-24	- 1	10.7	G

Y Cep 333 M 8.1-16.0

$00^h31\overset{m}{.}3$ +79° 48' 90° +16°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 7	- 2		
V	-18.0	+ 4.0	+ 7	-10	10.3	M5e M6e
1	-63.7	+35.3	-11	- 6	9.7	A2
2	-60.5	-47.2	- 7	0	11.7	..
3	-24.0	-20.0	- 3	+10	10.7	G0
4	-12.7	-30.7	+14	- 5	10.3	A2
5	+16.9	+39.0	- 1	-12	11.7	G.
6	+32.7	- 6.9	0	- 7	11.4	A2
7	+42.8	-34.8	- 7	- 3	10.0	K5
8	+66.6	+25.3	+ 6	+ 7	11.1	A5

U Cas 27_ M 8.0-15.4

$00^h40\overset{m}{.}8$ +47° 42' 90° -14°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 7	+ 4		
V	- 0.9	+ 6.8	-14	- 2	10.4	S5 5e S8 6e
1	-66.5	- 3.0	+18	- 4	9.9	K0
2	-51.8	+43.8	+ 2	3	10.5	A0
3	-11.5	+24.1	+ 1	0	9.8	A2
4	- 8.2	-45.8	-23	+ 8	10.2	.
5	+ 6.7	+ 9.9	- 9	+ 1	9.9	A0
6	+14.3	-10.2	+34	-15	9.9	K0
7	+50.9	+31.7	+ 4	+ 3	11.1	A2
8	+66.1	-50.4	-29	+11	10.5	B8

RW And [illegible] M 7.9-15.4

$00^{h}4[illegible]$ +32° 08′ 90° -30°

+13 -8

No.	X	Y	μ_α	μ_δ	m	Sp
V	-2.8	-15.1	-2	-1	10.5	M5e M[illegible]e
1	-68.1	-30.8	0	+5	10.7	F8
2	-42.8	-17.0	+17	+8	11.5	A0
3	-37.8	-9.4	-45	-16	10.0	F8
4	-14.5	-22.5	+45	-10	11.3	F8
5	+21.6	+45.2	+91	+27	11.2	...
6	-30.2	+52.6	-62	-25	9.2	K5
7	+38.7	+11.0	-33	+9	10.5	K0
8	[illegible]3.7	-29.0	[illegible]	+2	10.9	G5

[illegible] And [illegible] M 9.0-15.2

[illegible]4.7 +35° 07′ 91° -27°

-13 -8

No.	X	Y	μ_α	μ_δ	m	Sp
V	-3.2	-5.9	-13	-2	10.6	M2e M3e
1	-65.7	+21.2	-2	+7	8.6	K2
2	-49.4	+24.6	-18	-13	11.5	F5
3	-18.0	-30.6	+3	-5	9.4	G0
4	-14.1	-51.0	+17	+1	11.4	G5
5	+14.0	-11.1	-41	-5	10.0	F8
6	+43.1	+19.5	+4	-4	10.5	K0
7	+45.2	-12.0	+21	-1	11.2	K2
8	+44.8	+39.6	+16	+10	9.7	A2

RR And 328 M 8.4-15.6

$00^{h}46^{m}.0$ +33° 50′ 91° -28°

+11 -7

No.	X	Y	μ_α	μ_δ	m	Sp
V	+18.5	+2.3	-12	-9	9.6	S7.2e
1	-43.7	+53.9	-28	-12	10.0	M5
2	-35.7	-21.9	-3	-4	11.7	...
3	-34.9	+6.1	+6	-5	11.7	..
4	-26.9	-28.4	+24	+21	11.7	...
5	+6.8	-53.4	-5	+5	10.5	F5
6	-7.6	+45.2	-33	+24	11.8	...
7	+53.5	-25.2	-12	-7	11.2	A5:
8	+73.2	-26.8	-16	-22	9.6	K5

RV Cas 331 M 7.6-15.5

$00^{h}47^{m}.1$ +46° 52′ 91° -15°

+10 -6

No.	X	Y	μ_α	μ_δ	m	Sp
V	-11.4	+16.7	+3	+3	10.3	M6e M7e
1	-70.1	-40.6	+11	-4	10.6	F2
2	-38.8	+29.2	-4	+4	10.0	F0
3	-20.0	-31.6	+1	+1	10.8	M0
4	-12.6	+26.3	-8	-1	10.5	M0
5	+24.2	-37.8	-14	-2	10.1	F2
6	+34.1	-15.9	+2	+5	10.5	G5
7	+34.9	-33.8	+30	+5	10.7	K0
8	+48.3	+36.6	-18	-8	10.1	F2

W Cas 405 M 8.2-12.4

$00^{h}49^{m}.0$ +58° 01′ 91° -4°

-5 -3

No.	X	Y	μ_α	μ_δ	m	Sp
V	+23.1	-11.7	-7	+4	10.6	Ce
1	-57.0	-42.2	-5	+3	10.3	A2
2	-43.9	-31.3	+5	-3	10.5	A:
3	+43.9	+43.0	-5	+3	11.0	A:
4	+57.0	-32.0	+5	-3	10.5	A5

Z Cet 185 M 8.4-14.2

$01^{h}01^{m}.7$ -02° 01′ 101° -63°

-15 -9

No.	X	Y	μ_α	μ_δ	m	Sp
V	-23.8	+10.4	-33	+11	10.5	M1e M4e
1	-76.5	-1.6	+19	-9	11.5	...
2	-53.4	+10.1	-28	-1	9.8	K2
3	-27.9	-33.4	+9	+10	12.1	...
4	+4.8	+7.6	+8	+4	9.3	A5
5	+28.4	+36.1	+28	+13	10.9	G:
6	+37.3	-24.8	-19	-6	10.0	K
7	+39.0	+21.8	-8	-16	10.4	G5
8	+48.3	-15.8	-9	+5	10.8	K:

X Psc 352 M 8.5-14

$01^{h}06^{m}.7$ +21° 42′ 98° -40°

-11 -8

No.	X	Y	μ_α	μ_δ	m	Sp
V	+3.9	+14.9	-10	+4	10.7	M6e
1	-43.1	+0.1	-5	+1	10.8	K0
2	-15.4	-44.7	-5	-1	10.4	K0
3	+14.7	-44.4	+5	-1	11.2	F8
4	+43.9	+0.2	-5	+1	11.4	G0

U And 347 M 9.3-15.3

$01^{h}09^{m}.8$ +40° 11′ 96° -20°

+12 -8

No.	X	Y	μ_α	μ_δ	m	Sp
V	-1.6	-5.2	+46	+5	10.4	M6e
1	-51.5	-18.3	+80	+27	11.0	F5
2	-21.9	+36.2	+13	-3	10.9	K5
3	-13.7	-37.9	-93	-25	11.0	K5
4	+5.6	+30.6	+9	-3	10.8	K0
5	+39.6	-47.0	+13	-3	9.6	A5
6	+41.9	+36.4	-22	+6	10.5	M

UZ And 314 M 9.1-15.6

$01^{h}10^{m}.5$ +41° 13′ 96° -20°

+9 -6

No.	X	Y	μ_α	μ_δ	m	Sp
V	+1.7	+9.0	+8	+7	11.3	M7e
1	-60.2	+17.0	-12	-6	11.1	F8
2	-58.1	-6.3	-2	+1	11.0	A5:
3	-25.9	+39.5	+23	+7	10.8	G0
4	-10.7	-38.0	-8	0	10.9	K2
5	+27.8	+11.6	-25	-39	11.0	K2
6	+33.4	-21.0	+4	-1	10.7	A5
7	+46.0	-27.2	+14	+38	11.2	...
8	+47.7	-30.0	+6	+3	11.6	...

S Cas 612 M 7.9-15.2

$01^{h}12^{m}.3$ +72° 05′ 93° +10°

+8 -4

No.	X	Y	μ_α	μ_δ	m	Sp
V	+1.4	-8.0	-6	+8	9.8	S4,6e
1	-61.1	-26.6	+6	-14	10.5	A5
2	-34.4	-22.7	-1	-20	9.6	G5
3	-22.4	+41.6	-8	+1	10.3	...
4	-8.3	+29.2	+1	+5	10.3	A5
5	+15.8	+5.6	-4	+2	10.1	A5
6	+21.1	-30.9	-4	-3	10.8	A5
7	+43.1	-30.3	-11	-9	10.6	...
8	+46.2	-26.5	-3	+2	11.3	...

S Psc 405 M 8.2-15.3

$01^{h}12^{m}.4$ +08° 24′ 103° -53°

-14 -10

No.	X	Y	μ_α	μ_δ	m	Sp
V	+9.4	+5.8	-15	-11	10.6	M7e
1	-65.6	-25.8	+1	-14	10.5	...
2	-29.3	+28.3	-28	+1	10.8	...
3	-20.3	-42.1	+4	+1	11.7	...
4	-4.6	+1.5	-24	-17	9.6	F5
5	-14.0	-29.9	3	+12	11.8	G0
6	+30.5	-27.8	-25	-2	10.5	G0
7	+30.0	-29.7	-36	+3	11.3	...
8	+45.4	+21.3	-3	-13	11.8	G:

[illegible] Psc 173 M 10.3-14.9

$01^{h}17^{m}.7$ +12° 21′ 104° -49°

-13 -9

No.	X	Y	μ_α	μ_δ	m	Sp
V	+4.7	-4.1	+7	+8	11.1	M4e
1	-65.1	-11.1	-3	+11	11.0	K0
2	-53.1	33.1	+1	+4	12.0	..
3	-28.9	+41.1	-29	-5	11.2	K2
4	-27.1	-39.9	+7	-12	9.3	K0
5	-20.7	+30.2	+1	-1	11.8	K0:
6	-11.1	-36.7	-25	-21	8.9	K0
7	+4.4	-33.4	+19	-2	11.4	F8
8	+14.6	-41.8	+4	+1	9.5	K0
9	+19.3	+11.2	-13	+16	11.2	K0
10	+31.2	+5.5	-2	+6	12.6	...
11	65.0	+44.9	-9	+5	12.0	...
12	+71.6	-10.2	-26	-30	11.3	K0

RX Psc 280 M 8.8-14.6

$01^{h}20^{m}.2$ +20° 52′ 102° -40°

-12 -9

No.	X	Y	μ_α	μ_δ	m	Sp
V	+4.[illegible]	+1.6	-12	0	10.5	M1e
1	-61.9	+21.0	-6	+1	10.9	G0
2	-32.6	+2.0	-2	+4	10.3	K0
3	-30.9	+30.0	-26	0	10.0	F5
4	-15.6	-47.5	-23	+4	10.4	K0
5	+22.6	+4.9	-10	+14	10.3	K0
6	+29.7	+33.6	-23	-10	10.5	G0
7	+38.7	-33.3	-30	-13	11.2	G0
8	+50.1	-10.6	-3	+9	10.5	F2

RZ Per 354 M 8.7-14.0

$01^h23^m.6$ +50° 20′ 97° -11°

No.	X	Y	μ_α	μ_δ	m	Sp
			+5	-3		
V	+11.2	+2.4	+1	-1	10.4	S4.9e
1	-59.4	+49.0	+1	-2	11.1	K0:
2	-50.5	-42.8	-2	+5	10.3	A2
3	-17.5	-45.8	0	-1	10.6	A0
4	-5.8	+8.1	+2	-3	10.9	A:
5	-10.4	-2.8	-3	-1	10.6	A0
6	-11.2	-32.9	-4	0	10.6	K0
7	+55.3	-41.1	+1	+4	10.7	G5
8	+56.3	-39.8	+6	-3	11.6	A0

R Psc 344 M 7.1-11.8

$01^h25^m.5$ +2° 22′ 112° -58°

No.	X	Y	μ_α	μ_δ	m	Sp
			-13	-8		
V	-7.8	-9.6	+2	-6	10.1	M3e M4e
1	-51.7	-18.7	0	-1	10.6	...
2	-49.5	-29.9	-15	+14	10.3	F8
3	-46.6	-28.8	-5	-1	10.2	K0
4	-41.3	-27.5	-7	-5	12.4	...
5	-32.	-52.3	+12	-3	11.2	..
6	20.0	21.0	+1	-2	12.0	...
7	+13.0	7.5	-8	-10	11.6	..
8	+32.8	-8.8	+6	+7	9.2	K2
9	-36.4	-6.6	-2	+6	11.8	..
10	-50.9	+20.0	-30	+9	11.4	K
11	-53.6	-40.2	-1	-6	11.1	G0
12	+55.0	+34.1	+20	-12	11.2	F8

RU And 233 SRa 9.9-14.5

$01^h32^m.8$ +38° 10′ 101° -23°

No.	X	Y	μ_α	μ_δ	m	Sp
			+10	-7		
V	-1.1	+20.1	-14	+11	10.8	M5e M6e
1	-54.1	-25.2	-10	-12	11.4	G0:
2	-39.8	+11.6	-1	+2	10.0	K0
3	-36.9	-17.3	+2	-7	11.3	K:
4	-5.5	-16.7	+10	+17	10.6	A5
5	+3.8	-7.1	-7	+4	11.1	A5
6	+39.9	-30.1	-3	-9	10.2	K2
7	+45.2	+48.1	+18	+6	10.7	K0
8	+47.4	-27.9	-8	-1	10.5	K5

Y And 220 M 8.2-15.1

$01^h33^m.8$ +38° 50′ 101° -22°

No.	X	Y	μ_α	μ_δ	m	Sp
			+9	-7		
V	-16.8	+7.5	-14	-6	10.2	M3e M4e
1	-51.2	-44.4	+1	+13	11.5	..
2	-43.4	-27.8	-2	0	11.3	...
3	-33.5	+19.5	+1	-1	9.8	A2
4	-30.4	+44.5	0	-12	10.5	A0
5	+34.1	+28.1	-8	-5	9.7	..
6	+34.6	+31.2	+7	+18	9.6	G0
7	+40.3	-16.8	+30	-42	11.3	...
8	+49.5	-34.3	-29	+29	11.8	..

X Cas 423 M 9.7-13.2

$01^h49^m.8$ +58° 46′ 99° -2°

No.	X	Y	μ_α	μ_δ	m	Sp
			+5	-4		
V	-3.0	+3.0	-3	+2	9.6	Ne
1	-39.0	+19.6	-10	-7	10.1	A2
2	-39.3	-43.0	-5	+4	9.7	A0
3	-30.5	+31.3	-18	-13	10.5	F0
4	-8.7	-22.1	-2	+3	10.3	A0
5	+13.4	-9.4	+2	+6	10.6	A2
6	+25.3	-19.6	+5	-9	9.7	A0
7	+29.4	+40.1	-9	0	10.6	A0
8	+48.8	-15.7	+2	+2	10.7	A0

U Per 321 M 7.5-11.7

$01^h52^m.9$ +54° 20′ 100° -6°

No.	X	Y	μ_α	μ_δ	m	Sp
			+5	-4		
V	-1.7	+8.0	+26	-5	10.2	M6e M7e
1	+70.1	-37.5	-5	+5	10.2	A0
2	-50.0	+19.5	+12	-16	10.2	A2
3	-27.0	+31.6	-6	+9	10.0	A0
4	-25.6	-40.3	-1	+2	9.9	A0
5	+27.0	-50.9	+6	-6	9.9	B8
6	+33.6	+43.1	-9	+2	10.5	A0
7	+50.9	+41.4	+3	+5	10.8	A5
8	+61.4	-7.2	0	-1	9.5	A0

S Ari 292 M 9.8-15.5

$01^h59^m.3$ +12° 03′ 118° -46°

No.	X	Y	μ_α	μ_δ	m	Sp
			-12	-9		
V	+[illegible].5	+9.9	-11	+2	11.6	M4e
1	-79.0	+15.6	+7	+23	10.5	K0
2	-67.2	-25.5	-17	-35	11.6	K0
3	-66.0	-44.9	-36	+12	10.6	K0
4	-33.3	-6.5	-4	+12	11.1	K0
5	-13.2	+21.8	+5	-10	10.8	K2
6	-11.2	+2.4	-8	-1	11.6	G0
7	-2.0	+46.9	+18	-3	9.6	F5
8	+48.4	+30.7	-15	-9	12.2	G
9	+50.6	+29.3	-7	-2	12.0	...
10	+51.2	-15.3	-16	-4	11.6	F5:
11	+56.4	+41.7	+14	-26	12.2	G
12	+65.3	-13.1	+25	+41	11.8	G0

R Ari 187 M 7.5-13.7

$02^h10^m.4$ +24° 36′ 114° -33°

No.	X	Y	μ_α	μ_δ	m	Sp
			+9	-8		
V	+6.8	+6.8	+14	-4	10.8	M3e
1	-57.7	+18.2	+10	-20	11.2	G:
2	-50.8	-28.8	-1	+5	11.4	...
3	-39.3	+32.4	-24	+8	11.2	A0:
4	-22.8	17.0	+15	+6	10.8	G:
5	+20.9	+25.7	0	+4	10.0	K0
6	+42.9	-43.8	+10	-6	11.2	G
7	+49.6	+9.7	-1	+1	10.7	K0
8	+57.2	-30.4	-9	+1	9.6	F0

W And 397 M 6.7-14.5

$02^h11^m.2$ +43° 51′ 107° -15°

No.	X	Y	μ_α	μ_δ	m	Sp
			+6	-6		
V	+3.4	+6.9	+1	+4	10.0	M7e M8e (S)
1	-33.7	-4.5	-6	-4	10.1	A2
2	-31.1	-29.6	-3	0	9.2	A0
3	-19.4	-25.7	-6	-3	9.8	M0
4	-14.0	+54.9	+4	+3	9.0	A0
5	-2.7	-26.3	+11	+5	10.2	A5
6	+6.0	-19.0	-2	+4	10.7	K2.
7	+46.6	-14.6	-1	-1	10.7	A0
8	+48.3	+5.6	-1	-3	9.9	A0

Z Cep 278 M 10.2-15.7

$02^h12^m.7$ +81° 13′ 94° +20°

No.	X	Y	μ_α	μ_δ	m	Sp
			+8	-6		
V	-1.3	+2.2	-1	-4	11.0	M2e
1	-61.9	+23.2	-8	+6	11.0	K0
2	-35.4	-9.5	-7	-16	10.8	F8
3	-24.6	+20.4	-3	-2	10.3	K0
4	-22.9	-46.3	-17	+13	11.7	K0
5	-3.5	+40.3	+12	-3	11.8	F8
6	+26.6	-15.2	-15	+7	10.5	G0
7	+51.3	+22.7	-1	0	12.0	G:
8	+63.4	-35.6	+4	-3	10.8	A0:

o Cet 332 M 2.0-10.1

$02^h14^m.3$ -3° 26′ 137° -57°

No.	X	Y	μ_α	μ_δ	m	Sp
			-12	-8		
V	+18.7	+7.2	-7	-211	10.2	M5e M9e
1	-44.7	-11.9	-19	-90	11.5	...
2	-44.0	+39.9	+59	+29	9.6	G0
3	-42.0	+31.4	-32	-7	11.3	K0
4	-31.0	-23.0	+2	+29	11.7	...
5	-15.4	-42.0	-8	+40	11.0	K:
6	+19.9	-44.6	-4	+31	10.3	K0
7	+24.3	+8.7	-7	-8	9.6	K0
8	+27.3	-23.4	+31	-9	11.9	G:
9	+48.4	+38.9	-13	-15	10.5	F8
10	+57.3	+25.9	-7	+1	11.6	A5

R Cet 166 M 7.2-14

$02^h20^m.9$ -00° 38′ 135° -54°

No.	X	Y	μ_α	μ_δ	m	Sp
			+11	-8		
V	+2.4	-16.8	+1	-2	10.3	M4e
1	-25.4	+25.1	+25	+8	10.6	K:
2	-26.4	-35.0	+2	-1	10.6	G0
3	-16.2	-43.5	+2	0	10.8	K:
4	-13.4	+25.4	-25	-7	10.4	K
5	+22.7	+20.5	-29	-6	10.8	G
6	+58.7	+7.5	+29	+6	9.9	K0

No.	X	Y	μ_α	μ_δ	m	Sp
S Tri		248	M		8.7-12.4	
	$02^h21^m.4$		+32°	17′	114°	-25°
			+ 9	- 9		
V	- 4.8	-10.1	-13	+ 1	10 4	M2e
1	-55.2	-14.7	+20	- 6	10.0	G:
2	-23.1	+52.0	+24	- 8	11.0	...
3	-17.0	-53.7	-43	+14	9.8	A:
4	- 4.1	+29.6	+11	- 6	11.2	...
5	+39.3	+ 6.6	-35	+14	10.2	K:
6	+51.9	-19.8	+24	- 8	10.7	K0

No.	X	Y	μ_α	μ_δ	m	Sp
RR Per		390	M		8.1-15.1	
	$02^h21^m.7$		+50°	49′	106°	- 8°
			+ 7	- 8		
V	- 9 1	+ 8.5	- 7	+ 7	11.1	M6e M7e
1	-57.8	-36.2	-15	+ 6	9.9	K0
2	-46.9	+ 0.7	-21	-16	11.6	F0
3	-29 1	-22 3	- 1	+ 5	11.2	F0
4	-15 0	+33 5	-36	-27	10.9	G
5	- 7 3	-36.2	+ 6	- 1	10 3	G5
6	+19.0	+35.9	-15	+ 5	9.7	A5
7	+58.4	-14 6	+ 9	-10	11.4	K0
8	+63.3	+39.1	0	+ 6	11.0	A2

No.	X	Y	μ_α	μ_δ	m	Sp
R For		388	M		7 5-13 0	
	$02^h24^m.8$		-26°	33	183°	-67°
			+12	- 4		
V	+ 3.2	-12.2	+ 2	+16	10 6	Ne
1	-61.0	- 0.1	+ 3	-33	11 5	.
2	-49.3	+12 0	-34	-11	10 9	K2
3	-34.6	-18.5	+ 5	+22	10 8	F0
4	-30 5	+19.9	+ 5	+24	11 6	F:
5	-28.2	+13 1	-31	-84	10 5	F8
6	-24.0	+16.8	-20	+23	12.3	.
7	- 4.8	-34.5	-31	+36	11.7	
8	+ 5.3	-29.2	+74	-48	10.2	K0
9	+26.9	-12.7	- 8	+18	9.0	F8
10	+59.4	- 6.2	-37	+ 5	11.5	G:
11	+69.0	+12.9	-14	+13	10.7	G5
12	+71.8	+26.3	-14	+12	12.2	..

No.	X	Y	μ_α	μ_δ	m	Sp
U Cet		235	M		6 8-13 4	
	02^h28^m9		-13°	35′	156°	-61°
			+11	- 6		
V	- 0 7	+ 1.5	+ 7	- 8	10 4	M2e M4e
1	-82.0	+46.7	+ 7	+ 4	10.1	K2
2	-44.3	+14.8	- 2	- 7	11.1	K0
3	-39.2	-24.8	- 7	+ 6	10.0	F8
4	-26 1	-49.1	+ 2	- 3	12 1	..
5	+ 5.7	-37.2	- 9	0	12.5	..
6	+ 9 3	+35 8	- 1	- 9	8 8	G0
7	+16.9	+ 3.1	+24	+ 3	11.6	G
8	+21.3	-49 0	+ 6	- 1	12.6	.
9	+23.0	+51.3	-23	-23	12 1	G
10	+28.6	-29.6	+ 8	- 3	11 7	G0
11	+30.6	+ 0.9	- 2	+ 9	11.8	.
12	+56 3	+37 0	- 2	+24	11 3	G0

No.	X	Y	μ_α	μ_δ	m	Sp
U Cet		235	M		6.8-13.4	
(Y)	$02^h28^m.9$		-13°	35′	156°	-61°
			+11	- 6		
V	- 0.8	+ 1.7	+ 1	-10	9.9	M2e M4e
1	-90.5	+51.5	+ 2	+ 5	10.1	K2
2	-48 9	+16.4	0	- 3	11.1	K0
3	-42.2	-27.4	+ 2	+ 5	10 0	F8
4	-28.8	-54.1	- 3	- 7	12.1	...
5	- 6.2	-41 0	0	+ 5	12.5	.
6	+10 2	+39.5	+ 2	- 8	8.8	G0
7	+18.5	+ 3.4	-35	- 3	11.6	G
8	+23.3	-54 0	+ 1	- 3	12.6	...
9	+25.2	+56.5	-23	-17	12.1	G
10	+31.4	-32.6	+ 3	+ 1	11.7	G0
11	+33.6	+ 1.0	- 7	+ 9	11 8	. .
12	+61 9	+40 8	- 9	+16	11.3	G0

No.	X	Y	μ_α	μ_δ	m	Sp
RR Cep		383	M		9 0-15.5	
	$02^h29^m.4$		+80°	42′	95°	+20°
			+ 7	- 6		
V	+18.2	- 1.1	- 8	+ 7	10.8	M8e
1	-65.0	-48.6	+ 8	+26	10.6	A5
2	-61 5	-10.8	- 5	-14	9.8	G5
3	-53 4	-39 4	+ 3	- 4	10.0	A0
4	- 8.0	+48.2	- 6	+12	10.0	K2
5	+29 8	-23.9	+ 4	+12	10.4	K0
6	+41.9	-19.3	- 7	- 4	10.9	G5
7	+51.6	+ 1 4	-12	+11	11.5	G5
8	+64 6	-13 6	+15	-19	11.9	A0

No.	X	Y	μ_α	μ_δ	m	Sp
R Tri		266	M		5.7-12.6	
	$02^h31^m.0$		+33°	50′	115°	-23°
			+ 8	- 8		
V	+ 6 5	- 6.6	-14	- 5	10 9	M4e M8e
1	-67.8	-23.1	- 2	- 3	11.6	K2.
2	-44.2	+26 5	- 4	+ 2	11.8	A:
3	-32.0	-12 9	+27	- 2	10.6	F8
4	-10 5	20.0	-21	- 4	10 4	...
5	+20 5	-41.1	11	- 1	10 2	A5
6	+27.2	+31 4	-10	+ 2	10.1	K2
7	+44.8	-27 7	+ 6	+ 6	10.0	K2
8	+55.0	-20 7	+16	- 7	11 4	K0.

No.	X	Y	μ_α	μ_δ	m	Sp
T Ari		324	M		7 5-11 3	
	$02^h42^m.8$		+17°	06′	127°	36°
			-10	-10		
V	-20 4	-14.3	-29	- 4	10 4	M6e M8e
1	-52.8	- 9 4	- 1	+ 8	10 7	G5
2	-47 1	+21 6	+ 7	-26	10 0	G0
3	-21.8	-25.9	-31	+28	9 7	K0
4	-17.9	+48 6	-26	-11	11 6	
5	+20.6	-22 2	-28	+14	11 0	.
6	+27.0	-29 0	+11	-35	10 5	K0
7	+45 2	- 1 2	+50	-15	9 3	G0
8	+46 8	+18 1	32	+37	11 9	

No.	X	Y	μ_α	μ_δ	m	Sp
R Hor		403	M		4 7-14 3	
(Y)	$02^h50^m.6$		-50°	18′	231°	-57°
			+11	+ 2		
V	- 0.1	- 5.4	-122	+32	11.1	M7e
1	-63.0	-51.4	+ 6	- 4	12.6	. .
2	-50.6	+64 8	+ 5	+15	11.1	F5:
3	-21.1	+46 3	- 5	- 2	11.2	G3
4	-20.3	-31.2	- 6	- 7	11.2	F8
5	+20 4	+47 1	+11	- 6	12 2	F2
6	+24.2	-74.1	+ 1	-16	11 1	gK
7	+42.6	+38.9	-11	- 4	9.8	G5
8	+67.8	-40.4	0	+27	11.6	f::

No.	X	Y	μ_α	μ_δ	m	Sp
T Hor		217	M		7.2-13 7	
(Y)	$02^h57^m.7$		-51°	02′	231°	-55°
			+11	+ 3		
V	+ 2.7	- 4 7	+ 4	+14	10.5	M4e
1	-64.4	+23 7	+49	-36	10 0	F8
2	-63.0	+13 4	-34	- 5	12 2	.
3	- 1.7	-47 1	-14	-41	10 8	G0
4	+14 6	-59 2	+10	+37	11.3	..
5	+16.8	+72 0	- 3	43	11.3	g
6	+40 2	-10 2	+ 4	+ 4	11.6	
7	+57.5	- 7.3	-11	+ 3	11.5	.

No.	X	Y	μ_α	μ_δ	m	Sp
U Ari		371	M		6 4-15 2	
	$03^h05^m.5$		+14°	25′	134°	-36°
			+ 8	+ 9		
V	- 6 2	+ 5 9	16	- 7	11 2	M4e M6e
1	-48 1	-12.0	-15	-20	10 2	K0
2	-41.0	-29 1	-15	-20	11 1	G5
3	-38.8	-31.7	-15	-20	11 1	F0
4	-50 3	+48 8	-15	-20	10 6	G5

No.	X	Y	μ_α	μ_δ	m	Sp
X Cet		177	M		8 4-13 0	
	$03^h14^m.4$		-01°	26′	151°	-45°
			+ 8	- 7		
V	- 5.1	+ 6.4	-18	-16	10.0	M2e (S)
1	-39.4	-16 7	12	- 2	10 2	F0
2	30.7	+30 5	+24	+11	11 0	F0
3	(-29.6	-14 0)	(+167	+102)	9 3	K0
4	-22.1	+49 4	-36	-13	12 2	.
5	+13 6	+36 2	-13	- 6	12 0	A0
6	+18 5	-42 0	7	-11	11 9	
7	+25 0	-22 8	-28	-24	11 0	K:
8	+35 1	+36 4	+48	+ 7	10 2	G5

No.	X	Y	μ_α	μ_δ	m	Sp
Y Per		252	M		8 1-10.9	
	$03^h20^m.9$		+43°	50′	118°	- 9°
			+ 6	-10		
V	+ 7.1	-14.6	- 7	+10	10 2	C4,3e
1	-47 2	-32 4	+ 1	+ 6	9.8	A0
2	-41 0	+40 9	+ 1	-12	9 7	K0
3	-25 6	+27 4	- 2	+ 6	9 8	K
4	+25 5	-45 9	-10	+ 1	9 2	A0
5	+36 7	+19 8	+ 1	+ 6	10 2	G5
6	+46 6	- 9 8	- 9	- 7	10 4	K0

R Per 210 M 8.1-14.8

$03^h23^m.7$ +35° 20′ 124° -16°

No.	X	Y	μ_α	μ_δ	m	Sp
			+9	-13		
V	+12.7	+10.4	-20	-1	10.6	M2e M3e
1	-52.6	-14.3	-16	-1	12.4	...
2	-38.5	+44.7	+8	-1	9.9	F8
3	-29.1	-47.2	+23	-8	11.6	F8
4	-13.0	+37.9	-15	+9	11.3	...
5	+26.4	-40.6	+3	0	9.8	F5
6	+33.7	-45.4	-10	+9	9.9	F5
7	+36.3	+16.2	+21	-25	10.4	F8
8	+36.7	+48.5	-14	+16	10.8	F8

T Eri 252 M 7.4-13.2

$03^h51^m.0$ -24° 20′ 186° -47°

No.	X	Y	μ_α	μ_δ	m	Sp
			+7	-3		
V	-1.5	+7.8	+16	+14	10.5	M3e M5e
1	-61.3	-48.4	+4	+12	11.7	...
2	-53.4	-47.0	-9	-6	12.2	...
3	-35.0	-30.3	-10	-5	11.4	...
4	-33.3	-32.0	+30	+1	11.7	..
5	-32.7	-4.8	-7	+1	10.8	K:
6	-14.3	-20.1	-1	+1	12.1	...
7	+12.4	+44.4	-9	-8	11.7	...
8	+27.0	+40.1	0	+5	11.6	...
9	+44.4	+27.9	-3	+7	11.9	..
10	+41.1	-26.0	+8	-18	12.1	...
11	+43.8	-29.6	0	+9	11.8	...
12	+61.3	-8.4	-3	+1	11.8	...

R Tau 324 M 8.1-14.7

$04^h22^m.8$ +09° 56′ 153° -24°

No.	X	Y	μ_α	μ_δ	m	Sp
			+5	-9		
V	+11.0	-2.9	-12	+8	10.1	M5e M7e
1	-48.7	-22.8	-6	+9	11.2	..
2	-38.4	-17.9	-3	+13	10.9	...
3	-8.7	+24.6	+20	-34	10.9	...
4	-7.8	+19.3	-12	+11	10.0	...
5	+8.2	+44.1	-8	+14	11.4	...
6	+9.8	-41.6	-1	-9	10.6	..
7	+36.4	-25.1	+10	-13	10.4	...
8	+49.2	+19.3	0	+9	11.8	...

S Tau 373 M 9.4-16.0

$04^h23^m.7$ +09° 44′ 153° -24°

No.	X	Y	μ_α	μ_δ	m	Sp
			+4	-8		
V	+25.3	+18.0	-16	+24	11.3	M7e
1	-62.8	+40.4	0	+4	11.8	...
2	-30.1	-35.3	+14	-5	12.5	...
3	-28.0	-21.1	-7	-5	12.7	...
4	-14.6	+16.5	-7	+6	10.8	...
5	+12.1	+33.0	-2	+11	10.8	..
6	+34.3	-52.9	-7	+10	10.4	K0
7	+37.6	+0.7	+36	-45	10.2	G5
8	+51.4	+18.7	-26	+24	10.3	K0

T Cam 374 M 7.3-14.2

$04^h30^m.4$ +65° 57′ 110° +13°

No.	X	Y	μ_α	μ_δ	m	Sp
			+4	-11		
V	-11.5	+2.1	-12	-3	10.4	S4.7e
1	-44.2	+15.0	+4	0	10.9	A0
2	-26.0	-30.3	-4	0	9.6	G5
3	+17.7	+21.1	5	0	10.5	A5
4	+52.5	-5.8	+5	0	10.7	G0

R Ret 278 M 6.8-14.0

(Y) $04^h32^m.5$ -63° 14′ 241° -39°

No.	X	Y	μ_α	μ_δ	m	Sp
			+6	+9		
V	-1.3	+1.5	+10	+17	10.0	M4e
1	-79.3	+37.8	+7	+28	10.1	A4
2	-35.7	-66.1	-10	-16	10.1	G5
3	-30.5	+39.6	+5	-4	12.5	K
4	-20.4	-42.3	-2	-7	11.4	G:
5	+20.0	-33.1	-7	+33	10.8	G
6	+27.4	+64.9	+7	-22	9.5	G2
7	+51.8	-25.0	-19	-10	9.5	G5:
8	+66.7	+24.4	-19	-2	9.6	G

X Cam 143 M 7.4-13.7

$04^h32^m.8$ +74° 55′ 103° -20°

No.	X	Y	μ_α	μ_δ	m	Sp
			+3	-9		
V	+13.6	+14.0	-12	-10	10.8	M3e
1	-48.7	-26.3	-6	+5	12.0	...
2	-40.6	+35.4	+44	+13	10.9	G0
3	-36.5	-20.2	-12	-13	11.0	K0
4	-34.1	-29.4	-27	-5	11.1	F0
5	+15.5	-37.2	+9	-4	10.8	..
6	+37.8	-34.0	+9	+12	11.3	..
7	+46.1	+37.9	-12	-17	10.6	G0
8	+60.5	+15.0	-6	+8	9.8	A2

RX Tau 335 M 9.1-14.8

$04^h32^m.8$ +08° 08′ 156° -24°

No.	X	Y	μ_α	μ_δ	m	Sp
			+5	-9		
V	-4.5	+6.0	-6	-16	10.6	M7e
1	-57.9	+41.5	-14	+8	10.3	F0
2	-53.9	+41.3	-4	+6	10.0	G0
3	-46.3	-52.6	0	+15	11.3	F8
4	-32.1	+1.9	+18	-17	10.5	K0
5	-30.7	-31.7	-12	-14	8.9	A2
6	-20.4	+21.2	+1	0	10.6	K0
7	-0.6	-45.4	+11	+3	10.3	F8
8	+28.2	-21.4	+6	+3	11.2	K2
9	+47.3	+24.8	-3	-3	10.2	A0
10	+50.0	-22.8	-5	-5	10.6	K5
11	+53.5	+33.2	-11	+2	9.7	K0
12	+62.9	+9.8	+14	+4	10.3	F5

R Cae 391 M 6.7-13.?

(Y) $04^h37^m.0$ -38° 26′ 208° -40°

No.	X	Y	μ_α	μ_δ	m	Sp
			+5	-2		
V	-0.9	-0.4	-18	-6	9.3	M6e
1	-74.6	-0.4	-4	-73	10.6	...
2	-64.6	+24.0	-3	+58	9.6	...
3	-57.9	-68.5	0	+43	11.3	..
4	-24.9	+67.0	-7	-28	11.0	...
5	+9.4	-27.5	-2	+1	10.3	...
6	+56.6	-20.1	-2	-8	10.0	...
7	+74.4	-59.2	+6	+28	10.1	...
8	+81.5	+44.4	-2	-20	10.7	...

V Tau 170 M 8.5-14.2

$04^h46^m.3$ +17° 22′ 150° -15°

No.	X	Y	μ_α	μ_δ	m	Sp
			-3	-8		
V	-9.6	-8.1	+15	-6	10.4	M0e M4e
1	-59.5	-39.5	+5	-14	9.4	K0
2	-35.7	-33.1	+4	-16	10.9	K0
3	-32.8	+48.7	-1	-7	10.8	K0
4	-23.7	-23.5	+7	-3	10.0	K0
5	-17.9	-17.3	-15	-1	9.6	F2
6	+25.6	+54.1	+4	-1	10.2	K5:
7	+49.1	-5.1	+7	0	11.1	K0
8	+74.8	-29.0	-10	-1	10.8	A0

R Ori 379 M 9.1-13.4

$04^h53^m.6$ +07° 59′ 160° -19°

No.	X	Y	μ_α	μ_δ	m	Sp
			+3	-8		
V	-1.2	+4.4	+11	-6	10.0	Ne
1	-60.5	+7.5	0	-4	11.4	K0
2	-42.7	-51.9	+6	-4	11.8	...
3	-16.9	-27.6	+3	[illegible]	10.8	G5
4	-16.1	+39.8	-9	-1	9.4	F0
5	+1.1	+53.1	-3	-3	9.7	F2
6	+8.3	-51.2	-5	-12	10.5	G0
7	+62.5	+50.9	+6	-1	10.0	G5
8	+64.4	-20.6	-4	-7	11.5	F5

R Lep 432 M 5.9-10.5

$04^h55^m.1$ -14° 57′ 182° -30°

No.	X	Y	μ_α	μ_δ	m	Sp
			+3	-3		
V	+16.7	+1.5	+4	-7	10.5	N6e C7,6e
1	-79.5	+30.1	+20	-20	10.8	..
2	-67.5	-55.7	-25	-15	11.9	...
3	-40.3	-18.8	+15	-13	12.0	.
4	-32.6	+45.6	-11	-22	11.5	
5	+43.7	-23.3	+19	+11	10.4	K0
6	+44.5	-11.6	-5	-2	11.1	A0
7	+62.4	-2.8	-9	-13	10.0	K5
8	+69.2	+13.1	-4	+3	9.9	K0

T Lep 368 M 7.4-13.5

$05^h00^m.6$ -22° 03' 190° -31°

No.	X	Y	μ_α	μ_δ	m	Sp
			+3	-2		
V	-10.0	-11.1	+10	-26	10.4	M6e M8e
1	-60.3	-46.4	+9	+4	10.8	G5
2	-42.7	-18.3	-7	-1	10.5	G:
3	-36.7	+8.2	-9	-11	10.3	F0
4	-33.7	+36.4	-7	+3	10.6	...
5	+20.5	-13.1	-26	-6	10.6	...
6	-29.7	+15.6	-10	+4	11.0	...
7	+54.0	-27.4	+10	+2	10.7	...
8	+69.2	+45.0	+26	-1	10.5	...

V Ori 268 M 8.9-14.7

$05^h00^m.8$ +03° 58' 164° -20°

No.	X	Y	μ_α	μ_δ	m	Sp
			+2	-6		
V	+0.6	+3.1	-4	+9	11.0	M3e
1	-67.1	-7.0	-14	+1	9.1	F0
2	-62.6	-6.9	+12	-3	10.2	K0
3	-39.6	+40.2	-6	-9	11.2	A5
4	-17.3	-27.6	+9	+10	11.2	...
5	+6.6	-25.5	+14	+4	11.6	A2
6	+19.3	-1.2	-26	-24	11.6	C5
7	+28.4	+28.3	-5	+3	10.0	K2
8	+28.5	-24.8	+5	+11	10.4	..
9	+51.4	+16.9	+6	+6	10.2	F2
10	+52.4	+7.6	+4	0	10.8	...

S Pic 427 M 7.2-14.0

(Y) $05^h08^m.3$ -48° 38' 222° -35°

No.	X	Y	μ_α	μ_δ	m	Sp
			+2	+2		
V	-4.3	-1.5	+9	+2	10.4	M7e M8e
1	-64.7	+5.7	+3	+2	13.1	...
2	-49.7	-21.7	-3	0	12.0	...
3	-28.3	-52.5	+9	-2	12.3	...
4	-11.4	+53.0	-9	0	12.2	...
5	+23.5	+48.8	-12	+1	13.1	...
6	+35.3	+42.7	+18	-3	12.8	..
7	+34.5	-50.8	-6	+2	12.5	...
8	+60.7	-25.3	0	-1	12.1	...

R Aur 459 M 6.7-13.7

$05^h09^m.2$ +53° 28' 124° +10°

No.	X	Y	μ_α	μ_δ	m	Sp
			+1	-8		
V	+2.0	-3.9	+5	-6	10.1	M7e M9e
1	-47.0	+24.6	+4	-3	11.2	A5
2	-9.1	-50.0	-1	+3	9.3	A2
3	+8.8	+42.9	+4	+1	11.0	A5
4	+18.8	-36.1	+1	-3	9.7	K0
5	+29.1	+18.6	-6	+2	11.1	F0

T Col 225 M 6.6-12.7

(Y) $05^h15^m.6$ -33° 49' 204° -32°

No.	X	Y	μ_α	μ_δ	m	Sp
			+3	+1		
V	-0.1	+3.1	+23	+10	10.5	M4e M6
1	-73.8	+20.6	+15	-9	11.0	F8
2	-71.8	-29.6	-6	+2	9.9	F8.
3	-18.9	+61.8	-7	+29	11.6	...
4	-8.0	-50.3	-3	-22	11.9	...
5	+19.0	+47.6	-7	+6	11.3	...
6	+19.3	-44.5	+17	+54	9.7	F8
7	+63.4	+13.6	-2	-26	11.6	...
8	+70.8	-19.1	-9	-33	10.3	g:

W Aur 274 M 8.3-15.3

$05^h20^m.2$ +36° 49' 139° +2°

No.	X	Y	μ_α	μ_δ	m	Sp
			+9	-6		
V	-1.4	+16.3	-8	-5	10.2	M3e
1	-47.6	-43.8	-1	-2	10.4	B2
2	-39.0	+41.7	+1	+2	10.7	A0
3	+38.1	+49.4	-1	-2	9.2	A0
4	+48.5	-47.3	+1	+2	11.3	A0

S Aur 590 SRa 8.2-12.5

$05^h20^m.5$ +34° 04' 141° +1°

No.	X	Y	μ_α	μ_δ	m	Sp
			+1	-9		
V	+8.6	-10.7	+8	-6	10.4	N3e
1	-44.3	+26.9	-6	0	11.1	F8
2	-36.1	-26.6	+6	0	10.2	A0
3	+36.0	-32.9	-6	0	10.0	A2
4	+44.4	+32.6	+6	0	10.1	..

S Ori 416 M 7.5-13.5

$05^h24^m.1$ -04° 46' 175° -19°

No.	X	Y	μ_α	μ_δ	m	Sp
			+2	-6		
V	-4.8	+10.6	+7	-7	10.2	M7e
1	-55.0	+12.9	-5	+13	10.8	..
2	-51.8	+23.3	-14	+19	10.7	K0
3	-43.7	-36.8	0	0	10.4	F8
4	-40.5	+41.5	+11	-11	10.6	F8
5	-37.4	-38.2	+14	-21	10.7	G5
6	-33.4	-43.8	-6	0	10.2	..
7	+5.8	+29.8	+10	-5	9.8	F8
8	+35.1	-30.4	-1	+12	9.4	F2
9	+38.7	+10.5	+14	-5	10.6	F8
10	+58.2	-45.8	-7	+10	10.8	.
11	+61.4	+2.6	-2	+4	11.0	.
12	+62.5	+0.8	-14	-16	10.8	G.

S Cam 326 SRa 8.1-11.0

$05^h30^m.2$ +68° 44' 112° +20°

No.	X	Y	μ_α	μ_δ	m	Sp
			+2	-13		
V	+4.0	-3.3	-6	+1	9.5	R8e
1	-48.1	+49.2	-8	-2	9.5	K0
2	-14.5	-47.6	+18	-24	10.8	K0
3	-13.0	-51.3	-10	+26	10.9	G0
4	+3.5	+42.0	+1[illegible]	-1	11.3	F8:
5	+35.5	+33.1	-3	+3	9.8	K0
6	+36.4	-25.4	-9	-2	10.7	G0

RU Aur 468 M 9.0-14.5

$05^h33^m.3$ +37° 35' 140° +5°

No.	X	Y	μ_α	μ_δ	m	Sp
			+1	-7		
V	-17.2	+2.1	0	+4	10.1	M8e
1	-45.4	-8.5	-1	0	10.8	K0
2	-36.6	+27.1	+1	-3	10.0	A2
3	-27.1	+23.2	0	-1	10.2	K0
4	-13.6	-46.4	0	+4	10.7	...
5	+1.7	-44.2	-4	-15	10.5	A:
6	+16.1	+43.9	+4	+5	10.9	A0
7	+50.8	+20.5	-5	-1	9.5	A0
8	+54.1	-15.6	+5	+11	10.2	B8

U Aur 407 M 7.5-15.5

$05^h35^m.6$ +31° 59' 145° +3°

No.	X	Y	μ_α	μ_δ	m	Sp
			+1	-7		
V	+11.8	+9.8	+11	-7	10.9	M7e M9e
1	-65.9	-9.1	-2	+7	11.1	A:
2	-42.6	-21.2	-2	-1	8.8	A0
3	-34.1	+13.6	+3	-1	11.6	...
4	-32.8	-28.9	+1	-4	9.8	K0
5	+18.2	-29.5	0	-5	10.8	A0
6	+44.1	+45.0	-7	+14	10.0	A0
7	+51.0	+9.1	+6	-12	9.6	A5
8	+52.1	-21.4	+1	+2	10.4	A0

S Col 326 M 8.9-14.2

(Y) $05^h43^m.2$ -31° 44' 204° -26°

No.	X	Y	μ_α	μ_δ	m	Sp
			+1	0		
V	+1.1	+1.7	-16	+6	11.3	M6e
1	-73.0	-25.5	-12	-4	12.4	...
2	-48.3	+30.6	+20	+8	12.4	...
3	-43.6	-57.4	+1	0	12.0	. .
4	-12.1	+64.9	-9	-4	11.6	...
5	+27.8	+27.5	-3	-1	10.4	G0:
6	+29.4	-47.7	+2	-6	11.4	.
7	+59.2	-41.5	+9	+9	10.4	g5
8	+60.5	+49.2	-8	-2	13.0	.

Z Tau 494 M 9.2-14.1

$05^h46^m.7$ +15° 46' 160° - 4°

No.	X	Y	μ_α	μ_δ	m	Sp
			0	- 4		
V	+18.0	-13.0	0	+ 7	10.5	M7
1	-47.6	+39.3	+ 1	- 1	11.4	A2
2	-20.1	-41.0	- 1	+ 1	11.1	...
3	+33.4	+34.1	- 1	+ 1	11.5	A0
4	+34.2	-32.4	+ 1	- 1	11.9	A0

RU Tau 568 M 10.1-15.3

$05^h46^m.9$ +15° 57' 160° - 4°

No.	X	Y	μ_α	μ_δ	m	Sp
			0	- 8		
V	+14.8	- 5.5	- 5	- 4	10.9	M6.5
1	-73.9	- 6.8	- 8	-12	10.2	F8:
2	-32.4	-48.2	+ 6	+ 7	10.4	...
3	-25.9	+38.7	- 3	+ 3	11.7	A:
4	-11.6	+12.9	+ 5	+ 2	11.3	A:
5	+26.2	+26.1	+ 2	- 3	10.9	A:
6	+26.9	+38.4	- 4	- 2	9.9	A:
7	+32.6	-45.1	+ 5	0	10.5	K0
8	+58.1	-15.9	- 3	+ 5	10.9	A0

V Cam 522 M 8.5-16.0

$05^h49^m.4$ +74° 30' 106° +24°

No.	X	Y	μ_α	μ_δ	m	Sp
			0	-13		
V	+ 7.6	- 0.3	- 3	+18	10.2	M7e
1	-64.5	+ 4.4	+ 9	-33	9.8	A5
2	-35.3	+28.6	+ 6	+35	10.9	F2
3	-32.8	-35.1	0	+12	11.1	A5
4	- 3.3	+ 8.5	-14	-14	10.3	G5
5	+ 4.8	-18.8	+ 4	+13	11.3	G0
6	+26.6	+27.4	0	0	11.6	...
7	+47.5	-17.2	- 4	-25	9.3	A5
8	+57.0	+ 2.2	- 1	+13	10.0	A2

U Ori 372 M 5.3-12.6

$05^h49^m.9$ +20° 10' 156° - 1°

No.	X	Y	μ_α	μ_δ	m	Sp
			0	- 6		
V	+ 8.5	- 1.4	-12	- 4	9.6	M6e
1	-51.6	+35.9	- 2	- 3	11.5	...
2	-49.1	-24.0	- 1	- 1	10.6	A5:
3	- 6.9	-37.5	+ 3	+ 4	10.3	A5
4	+ 2.8	+25.4	+ 4	0	10.5	...
5	+22.2	+17.5	+ 1	- 2	10.8	...
6	+22.9	+ 2.2	- 3	+ 5	10.4	A0
7	+29.8	- 2.2	+ 1	- 1	9.7	A0
8	+29.9	-17.3	- 3	- 1	10.6	A0

Z Aur 135 SRd 9.2-11.7

$05^h53^m.7$ +53° 18' 127° +15°

No.	X	Y	μ_α	μ_δ	m	Sp
			0	- 9		G0e
V	+12.6	-10.3	+11	-11	10.7	G6e (M1)
1	-71.2	+21.6	- 9	- 5	10.8	F2
2	-35.1	-34.7	+ 2	- 8	10.6	G5
3	-28.5	- 7.7	+ 2	+11	10.9	A5
4	- 7.9	+35.8	+ 5	+ 2	11.1	...
5	+13.1	-28.3	- 7	+ 3	10.5	...
6	+14.1	-12.1	+ 3	- 6	10.8	A0
7	+51.5	+ 9.4	+ 1	+15	10.9	...
8	+64.2	+15.9	+ 3	-12	10.3	...

RS Aur 170 SRa 10.8-12.5

$05^h56^m.5$ +45° 18' 134° +12°

No.	X	Y	μ_α	μ_δ	m	Sp
			0	-13		
V	- 4.4	- 4.8	- 8	-11	10.1	M4e
1	-36.0	- 9.5	+12	- 1	9.8	K0
2	-26.7	+26.8	-13	+ 1	10.9	...
3	+30.9	-24.7	-13	+ 1	9.7	F2
4	+31.9	+ 7.4	+13	- 1	10.2	G:

X Aur 164 M 8.0-13.6

$06^h04^m.4$ +50° 15' 131° +16°

No.	X	Y	μ_α	μ_δ	m	Sp
			0	-15		
V	- 8.5	-23.7	- 3	-14	10.1	M3e
1	-51.2	+45.6	+ 6	+ 4	9.4	K5
2	-30.5	+37.1	+16	-11	10.5	K0:
3	-15.9	-36.5	-23	-15	10.2	F8
4	+ 1.3	- 4.1	- 8	0	10.4	K0
5	+ 7.7	+15.9	-23	-15	10.3	G5
6	+44.8	- 2.4	+16	+32	10.3	...
7	+43.8	-55.6	- 1	-17	10.3	G5

V Aur 354 M 8.5-13.0

$06^h16^m.5$ +47° 45' 134° +17°

No.	X	Y	μ_α	μ_δ	m	Sp
			- 1	- 8		N3e
V	+ 4.0	- 3.3	+ 2	+ 2	10.2	C55e
1	-48.2	+25.4	+ 3	- 1	11.5	...
2	-48.5	-33.9	+ 3	- 5	11.1	...
3	-23.4	+33.0	- 1	+ 7	11.1	...
4	-17.9	-25.0	- 5	0	10.9	...
5	+21.1	+ 4.4	+ 4	-17	11.0	..
6	+26.4	+36.1	- 6	+12	10.6	F0
7	+38.7	-17.8	- 1	+ 3	10.4	F2
8	+51.8	-21.3	+ 2	+ 2	9.9	A0

V Mon 335 M 6.0-13.7

$06^h17^m.7$ -02° 09' 179° - 6°

No.	X	Y	μ_α	μ_δ	m	Sp
			- 1	- 6		M5e
V	- 1.9	+17.3	+12	- 1	10.1	M8e
1	-67.4	+14.1	- 8	+41	9.8	K0
2	+49.5	+35.0	+ 5	+21	10.0	K0
3	-26.4	+44.0	+ 5	-80	10.1	F2
4	-22.1	-25.2	- 2	+19	9.1	A2
5	+19.5	-36.9	- 8	-43	10.3	F8
6	+35.4	+19.8	- 4	+13	10.0	K0
7	+55.3	+39.6	+ 8	+26	10.7	...
8	+55.2	-20.4	+ 5	+ 4	9.4	K0

U Lyn 436 M 8.8-15.0

$06^h31^m.9$ +59° 57' 123° +23°

No.	X	Y	μ_α	μ_δ	m	Sp
			- 2	-14		
V	+ 3.7	- 7.2	+ 2	+ 3	10.5	M8e
1	-58.8	+41.8	-10	+ 3	11.0	G5
2	-55.1	+11.7	+ 1	- 3	11.3	K5
3	-29.3	-31.6	+ 9	0	10.3	K0:
4	+30.9	-30.3	- 5	+10	10.7	F2
5	+50.6	-22.7	- 4	- 9	10.1	A5
6	+61.7	+31.1	+ 9	0	11.1	...

S Lyn 298 M 8.5-14.8

$06^h35^m.9$ +58° 01' 125° +23°

No.	X	Y	μ_α	μ_δ	m	Sp
			- 2	-12		
V	-19.5	+14.1	- 5	+12	10.7	M7e
1	-61.6	-29.2	-18	+ 9	10.1	F0
2	-50.5	+53.8	-31	+21	11.7	F8
3	-33.0	-42.0	+ 5	+ 6	10.8	K0
4	-27.6	+18.9	+44	-36	9.7	A0
5	+25.4	+38.4	- 6	+11	9.9	K5
6	+35.3	-12.2	- 1	-11	11.3	K0
7	+44.6	-49.3	+14	- 4	10.2	F2
8	+57.3	+21.5	- 7	+ 5	11.0	F5

X Gem 263 M 7.6-13.6

$06^h40^m.7$ +30° 23' 153° +14°

No.	X	Y	μ_α	μ_δ	m	Sp
			- 1	- 8		
V	+13.7	- 4.7	+ 1	-11	9.7	M5e
1	-46.0	-21.3	+ 7	0	9.5	A5
2	-35.1	+24.6	+10	- 4	9.5	K0
3	-33.8	+34.6	-26	+ 8	11.3	F0
4	-30.6	-27.6	+ 9	- 4	11.3	A2
5	+ 9.9	+20.6	- 6	- 2	11.8	G:
6	+24.9	-15.7	+ 2	+ 3	11.7	A0
7	+43.2	-51.6	-18	+ 2	10.8	F8
8	+67.6	+36.6	+21	- 2	12.4	...

Y Mon 231 M 8.6-14.9

$06^h51^m.3$ +11° 22' 171° + 8°

No.	X	Y	μ_α	μ_δ	m	Sp
			-2	-7		
V	+12.6	-14.9	0	-10	10.6	M4e
1	-49.2	+10.4	-11	0	9.9	K0
2	-29.6	-32.1	-2	0	9.2	A5
3	-15.8	+33.4	0	+11	11.5	K0
4	-13.9	+29.8	+13	-11	11.6	K0
5	+7.3	-49.9	0	+6	10.8	...
6	+26.4	+26.0	+4	-2	10.9	A5
7	+29.9	+2.5	-6	+1	10.6	A5
8	+44.9	-20.1	+2	-6	10.9	F8

X Mon 156 SRb 6.9-10.0

$06^h52^m.4$ -08° 56' 189° - 2°

No.	X	Y	μ_α	μ_δ	m	Sp
			-2	-4		
V	+6.3	+6.5	-1	-19	9.6	M3e M4e
1	-60.1	+24.4	-1	+2	8.9	M0
2	-36.8	+4.8	0	-6	10.2	K0
3	-13.2	+14.7	-1	+3	9.9	B8
4	-5.4	+43.5	+2	+1	11.3	A0
5	+11.7	-48.6	+9	-1	9.5	K0
6	+18.4	-42.2	-7	-4	9.3	A0
7	+27.6	+36.5	0	0	9.4	B8
8	+57.8	-33.2	-2	+8	9.1	A0

R Lyn 379 M 7.2-14.0

$06^h53^m.1$ +55° 28' 128° +25°

No.	X	Y	μ_α	μ_δ	m	Sp
			-2	-13		
V	-12.6	-20.7	-21	+3	10.1	S3.9e S6.8e:
1	-63.4	+35.5	-15	+11	9.5	F2
2	-28.3	+16.8	+6	-6	11.0	...
3	-23.5	-48.5	+8	-5	10.5	...
4	+26.9	-11.7	0	+5	10.0	K0
5	+40.2	-30.8	-8	0	9.2	K0
6	+46.2	+38.6	+8	-5	10.1	K0

R Gem 370 M 6.0-14.0

$07^h01^m.3$ +22° 52' 162° +15°

No.	X	Y	μ_α	μ_δ	m	Sp
			-3	-10		
V	+13.7	-1.6	0	+7	10.2	S3.9e S6.9e
1	-69.9	+10.2	+6	+6	10.4	G
2	-52.4	+37.2	-3	-13	10.5	K0
3	-24.3	-24.7	+3	+6	10.7	F8
4	-6.6	-46.3	1	0	10.2	A0
5	+4.9	-41.4	+7	+3	10.1	A5
6	+32.6	-21.7	0	+5	10.8	K2
7	+47.3	+13.6	-6	+4	10.2	A2
8	+68.4	-9.7	-1	-12	10.7	F8

V CMi 366 M 7.4-14.9

$07^h01^m.5$ +09° 02' 174° + 9°

No.	X	Y	μ_α	μ_δ	m	Sp
			-2	-5		
V	-2.8	-2.3	-15	+21	10.8	M6e
1	-53.7	-49.5	-48	+68	10.1	F2
2	-23.9	+39.9	-4	+20	11.3	A0
3	-15.9	+30.2	-5	+4	9.2	A0
4	-10.5	-35.7	+57	-91	10.4	dM0
5	+19.5	+26.9	+5	-5	9.6	A0
6	+21.5	-36.4	-13	+27	10.5	A0
7	+29.9	+30.9	+4	-18	11.0	A0
8	+33.1	-6.2	+3	-4	9.8	A0

R CMi 338 M 7.4-11.6

$07^h03^m.2$ +10° 11' 174° + 9°

No.	X	Y	μ_α	μ_δ	m	Sp
			-2	-6		
V	-3.3	+8.7	-10	+5	10.0	Sep Ce
1	-31.5	-37.5	+1	-1	10.0	A0
2	-11.8	+37.1	-1	+1	10.6	K0
3	+20.0	+29.1	+1	-1	9.5	K0
4	+23.3	-28.7	-1	+1	9.9	A5

RR Mon 393 M 8.4-15.2

$07^h12^m.4$ +01° 16' 183° + 8°

No.	X	Y	μ_α	μ_δ	m	Sp
			-2	-4		
V	-0.5	+6.0	0	-5	11.4	S7.2e:
1	-38.0	+33.1	+8	-10	11.8	..
2	-36.6	-29.0	+8	-6	11.5	...
3	-2.3	+46.8	-5	+6	11.4	...
4	-1.3	-38.1	-11	+10	11.4	...
5	+30.6	-30.2	+2	-4	11.7	...
6	+47.5	+17.5	-2	+4	11.4	A0

V Gem 275 M 7.8-14.4

$07^h17^m.6$ +13° 18' 172° +14°

No.	X	Y	μ_α	μ_δ	m	Sp
			-3	-8		
V	-4.0	+14.6	-5	-4	9.6	M4e M5e
1	-48.1	-33.4	-1	+2	11.3	A0
2	-35.3	+25.3	+7	-1	10.0	A5
3	-30.7	+20.2	-6	+3	9.4	A5
4	-9.6	-43.7	0	-3	10.4	A0
5	+15.2	-2.9	-5	+3	10.6	A0
6	+27.3	-36.2	+6	-1	10.9	...
7	+38.9	+22.8	-7	-1	10.3	F8
8	+42.3	-24.5	+6	-2	10.2	G5

S CMi 332 M 7.0-13.2

$07^h27^m.3$ +08° 32' 176° +15°

No.	X	Y	μ_α	μ_δ	m	Sp
			-3	-7		
V	-2.4	+2.0	-13	-1	10.6	M6e M8e
1	-50.7	+31.6	+7	-28	9.9	K0
2	-39.6	-27.0	-2	+14	9.8	A0
3	-24.2	-19.5	-4	+14	10.8	...
4	+11.8	+15.9	-7	+13	9.7	K0
5	+43.3	-6.5	+7	-28	10.2	K0
6	+59.4	+5.5	0	+15	10.0	K0

Z Pup 510 M 7.2-14.6

$07^h28^m.3$ -20° 27' 204° + 1°

No.	X	Y	μ_α	μ_δ	m	Sp
			-3	-2		
V	+11.4	+7.2	+3	-4	9.7	M6e M9e
1	-60.3	+34.6	+4	-3	10.4	F:
2	-56.5	-45.9	+1	0	10.5	A:
3	-28.3	+10.0	-6	+3	10.1	A:
4	-12.3	-6.1	+1	0	10.3	A:
5	+11.5	-9.0	+6	-1	10.1	A:
6	+33.2	+11.4	-7	+18	10.3	...
7	+40.4	+36.8	+10	-16	10.3	K:
8	+74.2	-31.8	-9	0	9.9	A:

T CMi 319 M 9.5-14.6

$07^h28^m.5$ +11° 57' 175° +16°

No.	X	Y	μ_α	μ_δ	m	Sp
			-3	-7		
V	+2.4	+13.7	+13	+2	10.6	M5e
1	-74.5	-36.4	+3	-5	11.0	...
2	-53.4	+12.4	-13	+5	10.1	F5
3	-22.4	+40.7	+6	-1	10.5	A2
4	-20.8	-32.5	+4	-1	9.7	A2
5	+3.7	-32.3	+1	+4	11.2	G0
6	+42.8	+44.0	-1	-10	9.4	A5
7	+59.1	+42.8	+8	+6	10.9	A0
8	+65.5	-38.5	-8	+1	10.6	A5

ST Gem 246 M 9.2-13

$07^h32^m.7$ +34° 43' 153° +26°

No.	X	Y	μ_α	μ_δ	m	Sp
			-4	-11		
V	+2.1	-7.2	+23	-14	9.9	M8e
1	-47.6	+7.5	+23	-17	10.3	K:
2	-42.3	+29.1	-33	-38	10.4	K0
3	-28.6	-7.1	+9	+98	11.5	K:
4	-13.4	-32.2	+1	-43	10.2	K0
5	+10.8	-27.2	-5	+17	10.3	..
6	+31.3	-41.4	-9	-43	10.6	G5
7	+41.8	-19.7	-1	-11	11.7	...
8	+48.0	+36.5	+15	+38	10.3	K0

U CMi 410 M 8.1-13.6

$07^h35^m.9$ +08° 37' 179° +16°

No.	X	Y	μ_α	μ_δ	m	Sp
			-4	-8		
V	-8.2	+17.9	0	+4	10.4	M4e
1	-59.6	+34.5	-7	+1	10.6	K2
2	-58.0	-21.2	0	+8	9.5	A2
3	-31.0	+20.3	+7	-9	9.0	M0
4	+47.1	-39.2	-3	-2	9.7	G5
5	+50.3	-20.3	+4	-5	10.4	K0
6	+51.2	+25.9	0	+9	10.5	G0

No.	X	Y	μ_α	μ_δ	m	Sp
S Gem		294		M	8.2-14.7	
	$07^h37.^m0$		+23° 41'		164° +23°	
			- 5	-10		
V	+ 1.0	- 2.9	- 1	+ 2	9.9	M4e M5e
1	-55.5	-45.3	- 3	- 2	10.5	...
2	-51.8	-48.9	0	+ 2	11.2	...
3	-40.8	-28.1	- 6	-11	10.8	G5
4	-14.9	+34.3	+ 6	+11	11.3	...
5	+12.4	- 8.5	- 4	+ 2	10.1	K0
6	+39.4	+13.1	+ 1	+20	10.7	K0
7	+54.4	+25.2	-10	-33	10.8	F2
8	+56.8	-40.6	+ 5	+11	10.4	K5

No.	X	Y	μ_α	μ_δ	m	Sp
W Pup		121		M	7.5-13.6	
(Y)	$07^h42.^m7$		-41° 57'		224° - 8°	
			- 4	+ 2		
V	0.0	+ 1.6	+20	0	10.2	M3e
1	-57.3	+15.8	+12	- 6	11.2	G5:
2	-55.0	-39.7	+16	+22	10.9	A0:
3	-34.0	-41.8	-53	+13	10.8	F:
4	-30.9	+49.0	+24	-29	10.3	...
5	+33.0	+45.7	+33	-34	9.9	A3
6	+34.5	-37.7	+16	-10	11.3	G
7	+51.5	+24.7	-69	+69	9.9	G3
8	+58.3	-15.9	+20	-24	10.5	G5

No.	X	Y	μ_α	μ_δ	m	Sp
T Gem		288		M	3.0-15 0	
	$07^h43.^m3$		+23° 59'		165° +24°	
			- 6	-13		
V	+ 7.7	- 6.4	+ 2	+ 2	11.1	S4.5.4e S9.5e
1	-48.4	-43.2	+ 2	+16	11.0	G:
2	-35.2	+44.8	- 6	0	9.7	F8
3	-20.5	-31.0	- 5	- 9	10.8	G5
4	-19.3	+45.3	+10	- 7	11.2	...
5	+25.3	-50.6	+ 5	- 1	10.6	F8
6	+27.5	-21.9	- 2	- 6	11.3	...
7	+29.7	+43.4	- 4	- 1	10.0	G5
8	+40.9	+13.1	+ 1	+ 8	11.5	...

No.	X	Y	μ_α	μ_δ	m	Sp
R Cnc		362		M	6.2-11.8	
	$08^h11.^m1$		+12° 02'		179° +25°	
			- 7	- 9		
V	+13.8	- 6.4	+ 9	+ 1	10.4	M5e M8e
1	-69.4	+14.6	+ 3	+ 9	10.7	...
2	-59.9	+49.6	-15	-12	9.9	K0
3	-59.8	-32.5	- 9	- 7	10.0	...
4	-43.3	-16.4	+ 7	- 3	11.2	...
5	-39.6	+46.8	+ 5	+ 1	11.0	...
6	- 1.9	-37.7	+ 8	+12	10.3	F8
7	+28.0	+51.4	+ 5	-19	10.6	...
8	+45.5	-41.0	- 9	- 3	10.0	...
9	+48.8	-42.5	- 4	- 4	10.7	...
10	+48.9	+ 0.7	- 1	+ 7	10.4	..
11	+51.7	-14.7	+ 6	+ 5	10.5	...
12	+51.0	+21.7	+ 2	+14	10.7	A:

No.	X	Y	μ_α	μ_δ	m	Sp
V Cnc		272		M	7.5-13.9	
	$08^h16.^m0$		+17° 36'		174° +29°	
			- 9	-12		
V	- 5.8	- 7.9	- 8	+16	9.8	S2.9e:
1	-77.6	-21.1	-21	+22	11.1	...
2	-38.2	-19.6	+35	-17	10.6	F8
3	-34.9	+27.0	-14	- 5	10.4	G5
4	+ 3.0	+35.4	+13	-10	9.3	G0
5	+15.2	+34.0	+ 8	+ 3	10.5	F0
6	+37.0	-45.8	+ 2	-12	10.8	F8
7	+46.3	-47.5	-16	+ 7	11.0	F0
8	+49.2	+37.6	- 7	+12	9.6	F8

No.	X	Y	μ_α	μ_δ	m	Sp
T Lyn		419		M	9.0-13.3	
	$08^h16.^m4$		+33° 50'		156° +34°	
			- 6	-10		
V	+10.4	- 7.2	+ 9	0	10.1	N0e C6$_3$e
1	-65.6	+24.9	-10	-13	11.8	...
2	-53.2	-43.6	- 4	+ 2	11.1	K0
3	-24.5	-32.9	- 5	+ 1	10.9	F2
4	- 3.8	+41.9	+19	+ 9	11.7	F8
5	+26.7	+ 5.5	+11	+ 3	11.7	K0:
6	+36.4	-24.0	+ 9	- 3	10.3	K2
7	+36.7	+28.0	[illegible]	+ 9	10.6	K0
8	+47.2	+ 0.1	[illegible]	[illegible]	9.8	F8

No.	X	Y	μ_α	μ_δ	m	Sp
RT Hya		253		SRa	7.1-10.2	
	$08^h24.^m8$		-05° 59'		198° +20°	
			- 8	- 7		
V	+20.7	+ 0.6	+26	-48	11.0	M6e M7
1	-72.5	-36.8	+16	- 9	11.1	G·
2	-59.3	+47.1	-13	+ 6	11.0	G0
3	-47.0	-54.8	- 3	+ 2	9.1	F2
4	+ 2.7	+40.4	+ 9	- 2	10.9	G:
5	+28.9	-13.5	- 4	- 4	11.0	G·
6	+39.2	-41.6	- 9	+11	11.5	G:
7	+44.2	+ 5.2	+17	-18	10.2	K0
8	+63.8	+53.9	-13	+14	10.4	G5

No.	X	Y	μ_α	μ_δ	m	Sp
U Cnc		305		M	9.0-15.5	
	$08^h30.^m1$		+19° 14'		174° +33°	
			-11	-15		
V	+12.5	- 0.5	+12	+ 7	9.8	M2e
1	-53.5	-22.6	-12	+ 8	9.4	G5
2	-35.8	+ 5.1	- 9	- 5	10.5	F5
3	-33.5	-39.6	+11	- 3	10.0	K0
4	-13.0	+43.2	+10	- 1	10.0	G0
5	+13.3	+47.1	+25	+ 8	10.3	G:
6	+34.7	-38.2	- 7	+ 7	11.3	...
7	+42.2	+12.2	-26	- 3	9.2	G·
8	-45.6	- 7.2	+ 8	-13	9.8	G5

No.	X	Y	μ_α	μ_δ	m	Sp
X UMa		249		M	8.1-14.8	
	$08^h33.^m6$		+50° 29'		136° +39°	
			- 6	-12		
V	-11.5	+ 6.3	+ 1	- 5	10.6	M4e
1	-76.0	-27.8	-33	+14	10.5	F8
2	-59.8	+20.7	+14	+10	10.4	K5
3	-41.6	+45.8	- 2	- 6	11.6	...
4	-26.8	-34.2	+21	-18	11.4	G:
5	+30.9	-19.2	- 4	- 1	10.0	K5
6	+38.9	+21.9	-23	+ 5	10.7	K0
7	+61.9	-24.5	+16	+ 5	11.2	G:
8	+72.6	17.3	+11	- 9	11.4	...

No.	X	Y	μ_α	μ_δ	m	Sp
S Hya		257		M	7.4-13.3	
	$08^h48.^m4$		+03° 27'		193° +30°	
			- 9	- 8		
V	+ 3.6	- 1.1	+ 2	+21	10.6	M4e
1	-66.9	- 9.0	-10	-17	9.0	F2
2	-44.9	-22.5	-16	- 2	10.2	K5
3	-37.4	-22.8	- 1	+ 8	10.7	K:
4	-26.4	- 6.7	+ 1	+ 8	8.9	M0
5	-19.2	+56.5	+27	+ 3	9.4	K0
6	+18.3	-25.0	- 3	+14	11.4	...
7	+38.4	+18.4	+22	+ 8	8.2	K2
8	+42.8	+20.0	-47	-11	10.8	G5
9	+45.1	- 1.8	+23	-29	11.1	...
10	+50.1	- 7.0	+ 7	+17	10.7	G5

No.	X	Y	μ_α	μ_δ	m	Sp
T Hya		288		M	7.2-13.2	
	$08^h50.^m8$		-08° 46'		205° +24°	
			- 8	- 5		
V	+10.0	+ 7.2	0	+ 8	10.1	M3e M4e
1	-48.2	+23.9	+ 4	- 2	9 3	K2
2	-35.8	+ 1.6	- 9	- 4	10.6	K:
3	-35.1	-31.1	+ 3	- 2	10.0	K0
4	-10.1	+34.5	+ 3	+ 8	11.3	...
5	+15.3	+15.8	- 1	+11	10.0	...
6	+20.2	-36.6	- 6	+ 7	9.6	K0
7	+36.3	-30.8	+ 3	- 5	9.9	...
8	+59.4	+22.7	+ 4	-13	9.4	K0

No.	X	Y	μ_α	μ_δ	m	Sp
S Pyx		207		M	8 0-14.0	
	$09^h00.^m7$		-24° 41'		220° +15°	
			- 5	- 2		
V	-16.3	-21.4	+10	+ 1	11.1	M3e
1	-35.4	+35.2	-14	- 4	12.0	. .
2	-25.5	-33.4	+ 5	+ 9	11.9	...
3	-17.2	-41.2	+10	- 5	11.5	...
4	-15.9	+18.4	0	0	12.3	...
5	+14.6	+35.6	- 1	- 3	10.2	..
6	+20.6	-24.3	-19	+10	9.4	...
7	+25.7	+23.6	+15	+ 7	10.6	...
8	+33.2	-14.0	+ 5	-14	12.1	...

No.	X	Y	μ_α	μ_δ	m	Sp
W Cnc		393	M		7.4-14.4	
	$09^h04^m.0$		+25° 39'		170° +42°	
			- 8	-10		
V	+ 7.1	+18.0	- 9	- 1	10.8	M7e
1	-52.6	+18.4	-11	- 8	11.9	...
2	-41.4	-50.4	+ 4	- 3	9.2	M0
3	-36.7	-51.9	+ 7	+10	11.2	...
4	+ 1.6	+44.5	+16	- 6	11.4	...
5	+24.2	+33.8	+ 4	+ 7	10.8	...
6	+31.3	+50.0	+ 1	+ 9	11.8	...
7	+32.3	-45.8	-12	- 8	11.6	...
8	+41.3	+ 1.5	-10	- 2	11.9	...

No.	X	Y	μ_α	μ_δ	m	Sp
RW Car		318	M		8.5-15.0	
(Y)	$09^h18^m.2$		-66° 20'		253° -13°	
			- 5	+ 2		
V	+42.7	-12.0	-13	+ 4	11.3	M4e
1	-66.0	-52.2	+10	+ 2	11.7	...
2	-64.7	+48.4	+ 5	- 3	11.2	...
3	-34.8	+24.2	- 4	- 3	12.0	...
4	-22.6	-22.4	-11	+ 5	12.2	...
5	+27.2	-11.0	+ 9	0	13.2	...
6	+29.2	+16.9	-15	+12	11.4	...
7	+62.5	+56.8	+13	- 5	10.9	...
8	+69.2	-60.8	- 7	- 7	11.0	...

No.	X	Y	μ_α	μ_δ	m	Sp
X Hya		302	M		8.0-13.6	
	$09^h30^m.7$		-14° 15'		216° +28°	
			- 8	- 4		
V	- 8.9	+ 7.4	-50	+ 2	10.1	M7e
1	-65.1	+10.0	-12	+ 3	10.2	K0
2	-48.8	-53.2	- 6	+ 7	9.1	A2
3	-46.5	-18.0	- 1	+13	11.6	K:
4	-14.8	+39.1	+19	-22	10.6	G:
5	+20.8	+31.5	- 4	+26	9.9	K0
6	+37.9	-20.7	+ 8	- 5	11.3	F0
7	+44.9	+36.7	- 2	- 6	9.8	K:
8	+65.6	-25.4	- 1	-15	11.1	A5

No.	X	Y	μ_α	μ_δ	m	Sp
X Hya		302	M		8.0-13.6	
(Y)	$09^h30^m.7$		-14° 15'		216° +28°	
			- 8	- 4		
V	- 5.7	+ 5.9	-35	- 3	10.2	M7e
1	-67.5	+ 9.5	+ 4	- 8	10.2	K0
2	-50.0	-63.5	- 4	+ 7	9.1	A2
3	-47.2	-21.7	+ 7	- 3	11.6	K:
4	-44.8	+60.0	- 6	+ 4	10.2	K2
5	+33.8	+32.1	- 3	+15	9.9	K0
6	+45.7	-25.7	+ 5	- 2	11.3	F0
7	+53.8	+37.5	+ 5	-12	9.8	K:
8	+76.3	-31.2	- 9	- 1	11.1	A5

No.	X	Y	μ_α	μ_δ	m	Sp
Y Dra		326	M		7.8-15.0	
	$09^h31^m.1$		+78° 18'		101° +36°	
			-11	-10		
V	- 7.4	-12.7	-12	-15	10.6	M5e
1	-47.5	-32.5	+14	+ 1	11.2	G:
2	-45.7	+12.3	-16	+ 5	10.6	G:
3	-40.5	+24.1	+ 9	+ 5	10.8	G:
4	-31.9	-24.1	- 7	-10	11.1	G:
5	+ 6.8	+29.8	- 4	-12	10.0	K0
6	+44.7	-21.8	+ 5	+23	11.2	G:
7	+54.1	-14.3	-12	-14	9.5	A0
8	+60.0	+26.4	+11	+ 2	9.8	G:

No.	X	Y	μ_α	μ_δ	m	Sp
RS Leo		209	M		10.7-16.0	
	$09^h37^m.9$		+20° 19'		180° +48°	
			-12	-12		
V	+ 7.8	-12.9	0	+23	11.4	M5e
1	-61.5	- 3.8	+ 2	- 1	11.4	...
2	-55.9	+15.2	+10	- 8	10.3	K0
3	-48.8	+ 1.5	0	+ 1	10.6	F0:
4	-26.8	+ 5.6	-14	+ 7	9.5	A5
5	+21.3	-51.2	-10	+ 8	10.0	G5
6	+29.0	+26.9	0	- 2	11.3	...
7	+36.4	+49.2	0	+ 2	10.9	...
8	+49.9	-48.1	+13	- 9	9.9	F3
9	+50.7	-27.3	- 2	+ 1	11.3	F8

No.	X	Y	μ_α	μ_δ	m	Sp
R LMi		372	M		6.3-13.2	
	$09^h39^m.6$		+34° 58'		158° +51°	
			-12	-12		
V	+ 3.3	+ 4.6	+19	+14	10.2	M7e M8e
1	-59.3	-14.3	-13	-11	11.2	...
2	-43.1	+32.6	-10	- 9	12.5	...
3	-37.9	-27.3	+ 4	+10	12.2	...
4	-17.3	+30.8	+19	+10	11.6	...
5	+12.8	+14.1	-12	- 7	10.9	G:
6	+23.6	+17.4	+ 3	+ 6	12.0	...
7	+55.5	-16.5	+ 2	- 5	9.0	G5
8	+65.7	-36.8	+ 6	+ 6	11.8	...

No.	X	Y	μ_α	μ_δ	m	Sp
RR Hya		342	M		8.6-14.5	
	$09^h40^m.4$		-23° 34'		225° +23°	
			- 8	- 3		
V	+ 7.8	+ 2.9	0	0	9.6	M4e
1	-34.5	+20.9	0	+ 1	11.5	A-F
2	-33.2	-15.6	+ 2	0	10.2	...
3	-24.2	+24.6	- 3	- 3	11.2	...
4	- 5.7	- 3.7	+ 2	+ 2	12.3	...
5	+13.3	-38.5	+18	-15	11.8	...
6	+18.1	+25.7	-11	- 3	11.3	...
7	+31.9	-21.4	-21	+13	11.1	...
8	+34.5	+ 7.9	+14	+ 5	10.5	K0

No.	X	Y	μ_α	μ_δ	m	Sp
R Leo		313	M		5.4-10.5	
	$09^h42^m.2$		+11° 54'		192° +45°	
			-12	-10		
V	+ 5.7	- 4.7	+19	-25	10.2	M7e M9e
1	-61.8	+ 8.5	+31	- 1	10.1	K0
2	-38.9	-25.0	+29	-28	10.7	G:
3	- 3.9	-14.0	-60	+30	9.8	G0
4	+32.2	+ 3.0	+ 7	-26	11.1	K0
5	+32.6	+53.7	-37	+27	9.5	F8
6	+39.6	-26.3	+31	- 1	9.7	G0

No.	X	Y	μ_α	μ_δ	m	Sp
S LMi		234	M		7.9-14.3	
	$09^h47^m.8$		+35° 24'		157° +53°	
			-13	-13		
V	+13.2	+10.6	+21	+18	10.9	M4e
1	-72.4	-27.6	0	- 3	11.9	...
2	-64.9	+18.0	+11	+ 2	10.1	K5
3	-60.0	-16.3	+12	+ 1	11.8	...
4	-24.6	+58.3	-23	- 1	11.6	K5
5	+24.3	-33.4	+11	+ 6	10.2	G5
6	+45.7	-45.4	-23	- 5	9.8	A2
7	+75.0	+24.8	-12	-30	10.6	G5
8	+77.0	+21.5	+24	+28	10.1	K9

No.	X	Y	μ_α	μ_δ	m	Sp
V Leo		273	M		8.4-14.6	
	$09^h54^m.5$		+21° 45		180° +52°	
			-13	-11		
V	+ 2.7	+ 7.0	+20	-10	10.1	M5e
1	-72.8	-45.7	+23	+ 8	7.9	F0
2	-56.9	+54.1	+ 5	-13	11.6	K0
3	-22.8	-33.1	-26	+11	9.5	F8
4	- 7.8	+34.6	- 2	- 6	10.6	G5
5	+19.1	-16.7	+ 1	-21	11.8	...
6	+23.5	+41.2	+ 2	- 1	8.8	A5
7	+56.5	-38.1	+ 2	+ 3	9.4	A2
8	+61.2	+ 3.7	- 6	+19	11.4	...

No.	X	Y	μ_α	μ_δ	m	Sp
S Car		150	M		4.5-9.9	
(Y)	$10^h06^m.2$		-61° 04'		252° - [illegible]	
			- 5	+ 1		
V	- 0.1	+ 2.3	-90	+58	9.4	K7e M4e
1	-45.3	-42.9	0	0	10.8	A:
2	-39.2	+42.6	0	0	9.9	A0
3	+40.4	+50.9	0	0	9.5	A
4	+44.1	-50.6	0	0	10.0	A0

No.	X	Y	μ_α	μ_δ	m	Sp
W Vel		394	M		8.4-14.0	
(Y)	$10^h11^m.5$		-53° 59'		249° + 2°	
			- 7	0		
V	- 1.3	+ 0.6	- 6	+ 7	9.7	M7e
1	-61.6	+51.1	- 2	- 6	11.0	...
2	-34.0	-47.7	+ 2	+ 6	11.4	F8
3	+45.2	-43.6	- 2	- 6	11.2	A
4	+50.4	+40.2	+ 2	+ 6	9.6	A

S Sex 263 M 8.2-13.5

$10^{h}29^{m}.8$ +00° 11' 216° +48°

No.	X	Y	μ_α	μ_δ	m	Sp
			-16	-10		
V	- 3.4	+10.8	+ 2	- 1	10.1	M3e
1	-54.5	+10.3	-17	+17	11.7	...
2	-43.1	-65.5	+14	- 6	9.9	F?
3	-19.2	+34.9	-23	+12	11.6	...
4	- 0.9	+36.8	+26	-24	11.4	...
5	+10.1	- 4.9	-22	+16	9.5	G5
6	+23.4	+29.1	+12	- 2	11.5	G5
7	+36.5	-43.1	+ 8	-10	11.4	G5
8	+47.8	+ 2.5	+ 2	- 3	10.6	K0

RZ Car 273 M 9.0-15.0

(Y) $10^{h}32^{m}.8$ -70° 12' 260° -11°

No.	X	Y	μ_α	μ_δ	m	Sp
			- 8	+ 1		
V	- 5.6	- 0.1	+ 3	- 1	9.6	M4e
1	-63 4	+39.3	0	+ 3	10.6	A2:
2	-33.8	-47.6	0	- 2	10.3	...
3	+41.7	-50.6	0	+ 3	10.8	A
4	+55.5	+58.9	0	- 3	9.8	f:

R UMa 302 M 6.7-13.4

$10^{h}37^{m}.6$ +69° 18' 105° +45°

No.	X	Y	μ_α	μ_δ	m	Sp
			-13	- 8		
V	-11.2	+12.6	-15	0	11.0	M3e M6e
1	-56.6	-17.0	+ 8	- 6	10.7	F8
2	-41.8	-29.8	- 9	+ 4	9.8	K0
3	-34.8	-23.3	+ 1	+ 9	12.2	...
4	- 8.8	+22.0	+ 1	- 7	11.5	...
5	+25.2	+41.2	+29	+23	11.4	...
6	33.3	+22.4	-30	-15	11.0	G5:
7	+34.5	-11.2	-11	+ 1	10.5	K
8	+49.0	- 4 3	+12	- 9	11.9	...

V Hya 533 M 6.0-12.5

$10^{h}46^{m}.8$ -20° 43' 238° +34°

No.	X	Y	μ_α	μ_δ	m	Sp
			-11	- 5		
V	-19.8	- 7.5	-13	- 1	10.7	N6e C6₃e
1	-72.4	-31 3	+31	- 5	9.4	...
2	-34.1	+34.5	-30	+ 7	11.5	...
3	-30.6	- 7.3	+ 2	+ 1	11.1	..
4	- 6.3	+30.0	- 2	- 3	11.4	...
5	+12.3	-41.6	-19	- 2	10.6	...
6	+23.5	+17.7	+21	+ 1	12.4	...
7	+38.4	-21.3	-14	+ 6	10.0	...
8	+69.1	+19.4	+11	- 5	9.4	...

W Leo 385 M 8.9-14.8

$10^{h}48^{m}.3$ +14° 15' 202° +61°

No.	X	Y	μ_α	μ_δ	m	Sp
			-13	- 9		
V	- 7.7	-16.6	+30	+21	10.4	M7e
1	-70.5	+ 5.9	+ 3	+47	9.5	A0
2	-62.4	-17.4	+14	+20	10.6	G0
3	-55.7	+44.8	- 5	-39	9.2	K0
4	-46.3	+22.6	+ 4	+ 9	10.0	G:
5	-44.8	-51.8	-41	-59	11.2	...
6	-20.2	-29.5	+25	+22	10.7	K0
7	+30.5	+45.4	- 6	+14	11.6	...
8	+40.8	-20.2	+ 6	+ 7	11.8	G:
9	+49.1	-43.6	+17	+14	12.2	...
10	+53.4	-25.8	-22	- 3	10.8	G:
11	+57.8	+51.0	- 9	- 7	11.6	...
12	+68.5	+18.4	+13	-24	10.6	K0:

S Leo 190 M 9.4-14.5

$11^{h}05^{m}.7$ +06° 00' 220° +59°

No.	X	Y	μ_α	μ_δ	m	Sp
			-13	- 8		
V	- 7.7	+ 2.4	- 1	+ 2	10.8	M3e
1	-51.6	+ 3.4	-10	+12	12.0	...
2	-43.7	+25.3	+42	- 1	11.0	K0:
3	-42.6	+10.4	-26	-23	11.5	...
4	-27.3	-18.2	- 5	+12	12.4	...
5	+14.4	-60.5	-50	+41	9.8	F8
6	+35.7	+28.6	+ 5	+19	10.8	F0
7	+41.8	+14.9	-11	- 7	11.2	K:
8	+73.3	- 3.9	+56	-53	10.9	K0

RS Cen 164 M 7.8-13.9

(Y) $11^{h}16^{m}.1$ -61° 20' 260° - 1°

No.	X	Y	μ_α	μ_δ	m	Sp
			- 2	0		
V	-22.0	-26.5	+ 1	- 4	13.8	M2e M4e
1	-74.5	-60.9	+16	- 6	13.8	...
2	-74 5	+61.1	-16	+ 6	13.6	...
3	+72.5	-58.8	-16	- 7	12.9	...
4	+76.5	+58.6	+16	- 6	14.1	...

X Cen 315 M 7.0-13.9

(Y) $11^{h}44^{m}.2$ -41° 12' 259° +20°

No.	X	Y	μ_α	μ_δ	m	Sp
			-13	- 5		
V	-59.0	- 5.7	+ 9	+11	10.2	M5e M6e
1	-61.8	+43.5	-30	+12	11.2	g:
2	-58.3	-11.1	+ 4	+10	10.7	F5:
3	-42.2	-59 5	- 9	+ 6	10.6	fg:
4	-25.3	+41.1	+35	-28	11.3	g:
5	+ 7.1	-63.6	+15	- 5	10.9	F5:
6	+16.8	+57.0	+ 7	+17	10.2	g:
7	+81.7	+ 3.1	-11	- 1	10.7	gk:
8	+82.0	-10.5	-10	-11	11.4	...

W Cen 201 M 7.7-13.6

(Y) $11^{h}50^{m}.0$ -58° 42' 264° + 3°

No.	X	Y	μ_α	μ_δ	m	Sp
			- 8	- 2		
V	+ 2.7	+ 7.6	-28	+ 5	9.5	M3e M4e
1	-70.4	+44.4	- 2	+ 2	10.7	A1
2	-41.9	-19.4	+ 5	- 1	9.2	M1e
3	-32.7	+60.5	- 7	- 2	11.1	A0
4	-31.1	-51.5	+ 5	+ 1	10.2	A
5	+32.1	+27.3	- 2	+ 2	9.5	G3
6	+36.4	-34.4	-17	- 4	10.6	...
7	+37.4	+29.4	+12	- 1	10.5	A
8	+70.4	-56.3	+ 7	+ 4	10.8	A

R Com 362 M 7.3-14.6

$11^{h}59^{m}.1$ +19° 20' 221° +77°

No.	X	Y	μ_α	μ_δ	m	Sp
			-21	-12		
V	+17.5	+13.8	+ 8	+17	10.4	M5e
1	-52.2	-29.7	+10	+ 6	9.0	K5
2	-46.4	+27.4	-28	- 5	9.7	G5
3	-33.0	+ 2.8	+ 5	+ 3	11.4	M:
4	-31.8	-20.3	- 5	- 6	11.1	K0
5	- 1.8	+49.0	+17	+ 2	10.6	G5
6	+32.8	-38.9	+51	+24	10.0	F8
7	+63.7	+30.7	+ 6	0	11.1	G
8	-68.7	-21.0	-57	-24	9.4	G5

SU Vir 210 M 8.4-14.5

$12^{h}00^{m}.1$ +12° 55' 236° +72°

No.	X	Y	μ_α	μ_δ	m	Sp
			-14	- 8		
V	-11.9	+14.1	- 1	+15	10.0	M3e
1	-39.6	-28.2	+39	+28	12.0	G0
2	-29.2	+ 9.8	- 8	- 6	12.1	...
3	-26.6	-39.8	+ 7	- 9	11.0	G5
4	-19.6	+29.2	+41	-14	11.3	G5
5	-14.1	-20.6	-79	-12	11.6	K2
6	+21.3	+29.2	-14	+ 7	11.8	G0:
7	+42.7	+25.8	-16	+ 1	8.9	A2
8	+65.1	- 5.4	+30	- 7	11.8	F8

R Crv 317 M 6.7-14 4

$12^{h}14^{m}.5$ -18° 42' 262° +43°

No.	X	Y	μ_α	μ_δ	m	Sp
			-12	- 7		
V	+12.6	-11.2	+ 6	+ 3	10 8	M5e M7e
1	-61.6	+16.9	-36	+ 7	11.9	...
2	-57.5	-43.6	+17	-12	11.1	...
3	-52.1	+51.5	+10	+13	9.5	K:
4	-24.7	-13.5	-12	+ 3	9.9	G:
5	-21.9	-43.0	-11	+15	11.4	...
6	-20.6	+46 5	+32	-26	11.7	...
7	+ 5.9	+46.2	-36	+ 7	9.7	K0
8	+ 9.6	- 9.6	- 7	+ 3	10.9	...
9	+41.0	+11.9	+30	- 1	11.6	...
10	+41.0	-19.3	+ 9	-15	10.2	...
11	+68 8	- 1.8	+ 9	+18	9.6	K:
12	+72.1	-42.2	- 5	-14	11.6	..

No.	X	Y	μ_α	μ_δ	m	Sp
S Sex		263		M	8.2-13.5	
	$10^h29^m.8$		+00°	11'	216°	+48°
			-16	-10		
V	- 3.4	+10.8	+ 2	- 1	10.1	M3e
1	-54.5	+10.3	-17	+17	11.7	...
2	-43.1	-65.5	+14	- 6	9.9	F8
3	-19.2	+34.9	-23	+12	11.6	...
4	- 0.9	+36.8	+26	-24	11.4	...
5	+10.1	- 4.9	-22	+16	9.5	G5
6	+23.4	+29.1	+12	- 2	11.5	G5
7	+36.5	-43.1	+ 8	-10	11.4	G5
8	+47.8	+ 2.5	+ 2	- 3	10.6	K0
RZ Car		273		M	9.0-15.0	
(Y)	$10^h32^m.8$		-70°	12'	260°	-11°
			- 8	+ 1		
V	- 5.6	- 0.1	+ 3	- 1	9.6	M4e
1	-63.4	+39.3	0	+ 3	10.6	A2:
2	-33.8	-47.6	0	- 2	10.3	...
3	+41.7	-50.6	0	+ 3	10.8	A
4	+55.5	+58.9	0	- 3	9.8	f:
R UMa		302		M	6.7-13.4	
	$10^h37^m.6$		+69°	18'	105°	+45°
			-13	- 8		
V	-11.2	+12.6	-15	0	11.0	M3e M6e
1	-56.6	-17.0	+ 8	- 6	10.7	F8
2	-41.8	-29.8	- 9	+ 4	9.8	K0
3	-34.8	-23.3	+ 1	+ 9	12.2	...
4	- 8.8	+22.0	+ 1	- 7	11.5	...
5	+25.2	+41.2	+29	+23	11.4	...
6	+33.3	+22.4	-30	-15	11.0	G5:
7	+34.5	-11.2	-11	+ 1	10.5	K
8	+49.0	- 4.3	+12	- 9	11.9	...
V Hya		533		M	6.0-12.5	
	$10^h46^m.8$		-20°	43'	238°	+34°
			-11	- 5		
V	-19.8	- 7.5	-13	- 1	10.7	N6e C6$_3$e
1	-72.4	-31.3	+31	- 5	9.4	...
2	-34.1	+34.5	-30	+ 7	11.5	...
3	-30.6	- 7.3	+ 2	+ 1	11.1	...
4	- 6.3	+30.0	- 2	- 3	11.4	...
5	+12.3	-41.6	-19	- 2	10.6	...
6	+23.5	+17.7	+21	+ 1	12.4	...
7	+38.4	-21.3	-14	+ 6	10.0	...
8	+69.1	+19.4	+11	- 5	9.4	...
W Leo		385		M	8.9-14.8	
	$10^h48^m.3$		+14°	15'	202°	+61°
			-13	- 9		
V	- 7.7	-16.6	+30	+21	10.4	M7e
1	-70.5	+ 5.9	+ 3	+47	9.5	A0
2	-62.4	-17.4	+14	+20	10.6	G0
3	-55.7	+44.8	- 5	-39	9.2	K0
4	-46.3	+22.6	+ 4	+ 9	10.0	G:
5	-44.8	-51.8	-41	-59	11.2	...
6	-20.2	-29.5	+25	+22	10.7	K0
7	+30.5	+45.4	- 6	+14	11.6	...
8	+40.8	-20.2	+ 6	+ 7	11.8	G:
9	+49.1	-43.6	+17	+14	12.2	...
10	+53.4	-25.8	-22	- 3	10.8	G:
11	+57.8	+51.0	- 9	- 7	11.6	...
12	+68.5	+18.4	+13	-24	10.6	K0.
S Leo		190		M	9.4-14.5	
	$11^h05^m.7$		+06°	00'	220°	+59°
			-13	- 8		
V	- 7.7	+ 2.4	- 1	+ 2	10.8	M3e
1	-51.6	+ 3.4	-10	+12	12.0	...
2	-43.7	+25.3	+42	- 1	11.0	K0:
3	-42.6	+10.4	-26	-23	11.5	...
4	-27.3	-18.2	- 6	+12	12.4	...
5	+14.4	-60.5	-50	+41	9.8	F8
6	+35.7	+28.6	+ 5	+19	10.8	F0
7	+41.8	+14.9	-11	- 7	11.2	K:
8	+73.3	- 3.9	+56	-53	10.0	K0
RS Cen		164		M	7.8-13.9	
(Y)	$11^h16^m.1$		-61°	20'	260°	- 1°
			- 2	0		
V	-22.0	-26.5	+ 1	- 4	13.8	M2e M4e
1	-74.5	-60.9	+16	- 6	13.8	...
2	-74.5	+61.1	-16	+ 6	13.6	...
3	+72.5	-58.8	-16	+ 7	12.9	...
4	+76.5	+56.6	+16	- 6	14.1	...
X Cen		315		M	7.0-13.9	
(Y)	$11^h44^m.2$		-41°	12'	259°	+20°
			-13	- 5		
V	-59.0	- 5.7	+ 9	+11	10.2	M5e M6e
1	-61.8	+43.5	-30	+12	11.2	g:
2	-58.3	-11.1	+ 4	+10	10.7	F5:
3	-42.2	-59.5	- 9	+ 6	10.6	fg:
4	-25.3	+41.1	+35	-28	11.3	g::
5	+ 7.1	-63.8	+15	- 5	10.9	F5:
6	+16.8	+57.0	+ 7	+17	10.2	g:
7	+81.7	+ 3.1	-11	- 1	10.7	gk:
8	+82.0	-10.5	-10	-11	11.4	...
W Cen		201		M	7.7-13.6	
(Y)	$11^h50^m.0$		-58°	42'	264°	+ 3°
			- 8	- 2		
V	+ 2.7	+ 7.6	-28	+ 5	9.5	M3e M4e
1	-70.4	+44.4	- 2	+ 2	10.7	A1
2	-41.9	-19.4	+ 5	- 1	9.2	M1e
3	-32.7	+60.5	- 7	- 2	11.1	A0
4	-31.1	-51.5	+ 5	+ 1	10.2	A
5	+32.1	+27.3	- 2	+ 2	9.5	G3
6	+36.4	-34.4	-17	- 4	10.6	...
7	+37.4	+29.4	+12	- 1	10.5	A
8	+70.4	-56.3	+ 7	+ 4	10.8	A
R Com		362		M	7.3-14.6	
	$11^h59^m.1$		+19°	20'	221°	+77°
			-21	-12		
V	+17.5	+13.8	+ 8	+17	10.4	M5e
1	-52.2	-29.7	+10	+ 6	9.0	K5
2	-46.4	+27.4	-28	- 5	9.7	G5
3	-33.0	+ 2.8	+ 5	+ 3	11.4	M:
4	-31.8	-20.3	- 5	- 6	11.1	K0
5	- 1.8	+49.0	+17	+ 2	10.6	G5
6	+32.8	-38.9	+51	+24	10.0	F8
7	+63.7	+30.7	+ 6	0	11.1	G
8	-68.7	-21.0	-57	-24	9.4	G5
SU Vir		210		M	8.4-14.5	
	$12^h00^m.1$		+12°	55'	236°	+72°
			-14	- 8		
V	-11.9	+14.1	- 1	+15	10.0	M3e
1	-39.6	-28.2	+39	-28	12.0	G0
2	-29.2	+ 9.8	- 8	+ 6	12.1	...
3	-26.6	-39.8	+ 7	- 9	11.0	G5
4	-19.6	+29.2	+41	-14	11.3	G5
5	-14.1	-20.6	-79	-12	11.6	K2
6	+21.3	+29.2	-14	+ 7	11.8	G0:
7	+42.7	+25.8	-16	+ 1	8.9	A2
8	+65.1	- 5.4	+30	- 7	11.8	F8
R Crv		317		M	6.7-14.4	
	$12^h14^m.5$		-18°	42'	262°	+43°
			-12	- 7		
V	+12.6	-11.2	+ 6	+ 3	10.8	M5e M7e
1	-61.6	+16.9	-36	+ 7	11.9	...
2	-57.5	-43.6	+17	-12	11.1	...
3	-52.1	+51.5	+10	+13	9.5	K:
4	-24.7	-13.5	-12	+ 3	9.9	G:
5	-21.9	-43.0	-11	+15	11.4	...
6	-20.6	+46.5	-32	-26	11.7	...
7	+ 5.9	+46.2	-36	+ 7	9.7	K0
8	+ 9.6	- 9.6	- 7	+ 5	10.9	...
9	+41.0	+11.9	+30	- 1	11.6	...
10	+41.0	-19.3	+ 9	-15	10.2	...
11	+68.8	- 1.8	+ 9	+18	9.6	K:
12	+72.1	-42.2	- 5	-14	11.6	...

SS Vir 355 M 6.0-9.6

$12^h20.1^m$ +01° 19' 259° +63°

No.	X	Y	μ_α	μ_δ	m	Sp
			-18	-11		
V	- 2.5	+ 5.5	+ 9	+37	9.6	Ne C6₃e
1	-77.5	- 4.4	+48	-98	8.6	F8
2	-42.7	- 1.8	-10	+43	9.4	F8
3	- 6.7	-24.3	-38	+55	11.3	...
4	+18.4	-38.4	0	0	9.0	K2
5	+24.5	+17.5	-27	-23	11.8	...
6	+32.7	+ 9.8	+25	+17	11.9	...
7	+51.3	+41.6	+ 1	+ 6	10.4	G0

T CVn 290 M 8.6-12.6

$12^h25.3^m$ +32° 03' 128° +85°

No.	X	Y	μ_α	μ_δ	m	Sp
			-15	- 7		
V	- 3.2	+15.3	+39	- 7	10.5	M6e
1	-71.5	-53.9	+28	+ 4	10.6	K0
2	-66.1	+45.0	-28	- 4	9.7	K0
3	+23.2	-22.5	-33	+ 4	11.2	G:
4	+32.5	+26.4	+10	+10	11.7	...
5	+34.0	-19.4	+ 5	- 8	10.0	F8
6	+47.9	+24.4	+18	- 6	11.3	F8

Y Vir 219 M 8.3-15.0

$12^h28.7^m$ -03° 52' 265° +58°

No.	X	Y	μ_α	μ_δ	m	Sp
			-18	-11		
V	- 5.5	+28.0	- 6	- 4	10.6	M3e M5e
1	-40.8	-29.0	- 6	+24	11.4	G:
2	-30.6	+44.8	+ 5	-16	10.0	G0
3	-21.3	-39.5	+ 1	- 8	11.3	G:
4	+17.8	-27.6	- 2	+23	10.3	G5
5	+36.7	-27.4	- 3	- 8	9.7	K0
6	+38.2	-31.3	+ 5	-16	11.1	K5

T UMa 257 M 6.6-13.4

$12^h31.8^m$ +60° 02' 92° +58°

No.	X	Y	μ_α	μ_δ	m	Sp
			-16	- 3		
V	+10.6	+ 3.1	- 4	-12	9 9	M3e M6e
1	-65.8	-46.8	-15	+ 8	10.5	G0
2	-46.5	- 8.6	+20	+ 5	11.3	G0:
3	-42.6	+24.9	-22	- 3	12.1	...
4	-38.2	+46.8	+18	-10	9.2	K5
5	+30.8	-45.2	-12	- 6	10.8	...
6	+50.9	-37.8	+ 7	- 7	10.4	...
7	+55.0	+27.3	- 4	+12	11.0	F:
8	+56.4	+39.4	+ 8	+ 1	9.8	G5

R Vir 146 M 6.2-12.1

$12^h33.4^m$ +07° 32' 265° +69°

No.	X	Y	μ_α	μ_δ	m	Sp
			-14	- 8		
V	- 1.4	+14.7	-22	+13	10.2	M4e M8e
1	-69.8	+19.7	+12	-16	11.3	G0:
2	-67.2	-23.4	- 5	+ 7	11.0	G5:
3	-25.4	+45.4	-41	+20	10.2	K0
4	-16.0	+32.9	+27	-12	11.7	...
5	-10.9	-40.8	+ 7	+ 1	11.3	...
6	+ 7.8	-51.8	- 1	0	11.0	G
7	+29.9	+16.0	+16	- 4	11.4	...
8	+37.6	+ 3.1	-15	+ 3	12.0	...
9	+54.5	-43.6	- 1	- 8	11.8	...
10	+59.5	+42.5	+ 1	+ 9	10.6	K0

RS UMa 260 M 8.3-14.8

$12^h34.4^m$ +59° 02' 91° +59°

No.	X	Y	μ_α	μ_δ	m	Sp
			-14	- 3		
V	- 6.6	+17.7	-12	- 8	9.7	M4e M6e
1	-63.0	+30.8	+16	-12	11.7	...
2	-55.8	-38.5	+ 7	+ 6	11.2	K:
3	-44.1	+15 7	-17	+ 3	11.3	G0
4	-33.6	-33.7	+ 2	+ 7	10.3	K0
5	-27.3	-26.8	- 8	- 4	10.8	G5
6	+ 0.1	+33.0	+ 3	+ 7	10.6	G:
7	+ 0.2	-39.4	-12	-15	9.6	F2
8	+23.3	-18.5	+ 1	+31	10.8	G:
9	+27.6	+46.4	+10	- 5	11.8	G:
10	+47.0	+16.9	-13	+ 6	11.0	G:
11	+62.7	-24.5	+10	-25	10.7	G:
12	+63.9	+38.6	+ 1	0	11.7	...

S UMa 226 M 7.4-12.3

$12^h39.6^m$ +61° 38' 90° +56°

No.	X	Y	μ_α	μ_δ	m	Sp
			-15	- 2		
V	- 1.9	+11.0	+ 5	+ 6	10.2	S1.5.3e S5.9e
1	-74.5	+19.9	- 7	-33	10.2	G:
2	-49.0	+45.0	+52	- 9	10.3	G0
3	-41.8	-25.0	-17	+17	8.8	F8
4	-33.7	-12.8	-10	+ 4	11.7	...
5	-15.2	+37.8	-19	+21	10.6	F:
6	+10.8	-59.2	-27	0	9.7	K0
7	+19.5	+25.5	-19	+ 1	11.1	G:
8	+22.8	-57.0	-15	-24	10.0	K0
9	+31.0	- 5.2	+33	+ 9	11.7	F8
10	+41.1	- 8.4	+35	- 6	11.9	...
11	+41.4	+16.3	+ 8	+34	10.1	G:
12	+47.6	+21.1	-15	-13	11.4	...

RU Vir 437 M 9.0-14.2

$12^h42.2^m$ +04° 42' 271° +66°

No.	X	Y	μ_α	μ_δ	m	Sp
			-14	- 8		
V	- 1.1	+ 3.9	+16	-22	10.1	R3ep
1	-56.7	+29.3	+20	+ 6	10.6	K2
2	-28.6	-47.0	-37	+ 1	10.5	F8
3	-13.1	+ 6.1	+17	- 7	10.6	K2
4	+ 9.2	+33.9	+39	- 9	11.6	K2
5	+16.4	- 7.3	-76	+11	10.3	K0
6	+33.6	-28.6	-23	+15	11.2	F8
7	+39.2	- 1.0	+60	-16	9.6	G0

U Vir 207 M 7.5-13.5

$12^h45.0^m$ +06° 06' 277° +68°

No.	X	Y	μ_α	μ_δ	m	Sp
			-14	- 8		
V	+ 4.0	-25.3	+ 4	+ 9	10.0	M3 M5e
1	-42.3	-29.9	+18	-11	10.9	K0
2	-33.7	+27.7	-33	+ 8	9.7	K2
3	-26.8	+31.4	+ 9	- 8	10.8	K:
4	- 2.9	-28.2	+ 6	+12	10.5	A5
5	+ 3.7	+45.5	+10	- 5	11.0	G:
6	+ 9.9	-43.4	-69	+ 8	10.3	G:
7	+37.8	-28.3	+44	- 9	11.6	K:
8	+54.4	+25.2	+14	+ 5	10.9	K:

RV Vir 268 M 10.2-15.0

$13^h02.7^m$ -12° 38' 278° +49°

No.	X	Y	μ_α	μ_δ	m	Sp
			-13	- 8		
V	+ 1.3	- 8.3	+11	+19	12.2	M5e
1	-66.9	-20.5	+61	-21	9.9	K0
2	-63.5	-39.2	-38	- 4	11.4	...
3	-21.6	+45.0	+ 4	- 2	12.7	...
4	-13.4	+21.5	-27	+ 1	12.4	...
5	- 6.6	- 5.3	0	+27	11.2	...
6	+ 1.3	+31.9	+ 7	- 6	12.6	...
7	+ 4.4	- 8.0	-28	+17	10 5	...
8	+ 8.2	-25.4	-11	+29	11.9	...
9	+11.1	-18.2	-62	+21	12.1	...
10	+11.2	+48.5	+16	+ 8	11.4	...
11	+67.8	-15.7	+ 9	-34	11.1	K2
12	+68.0	-15.7	+14	-33	10.8	...

V CVn 192 SRa 6.8-8.2

$13^h15.1^m$ +46° 03' 71° +71°

No.	X	Y	μ_α	μ_δ	m	Sp
			-15	- 3		
V	- 9.4	+20.9	-28	-40	9.8	M4e M6e
*1	-59.9	+31.5	0	0	8.1	K2
2	+18.8	-51.6	0	0	8.4	K0
3	+41.1	+20.1	0	0	10.0	K2

*Reference star No. 1 is BD+46° 1861. It's $\mu_\alpha = +0.^s0159$, $\mu_\delta = -0.''080$ (2nd Greenwich Catalogue, p. 152, 1935). To make it an average background star, it's motion was deducted before the solution was made.

R Hya 386 M 4.0-10.0

(Y) $13^h24^m.3$ -22° 46' 283° +38°

No.	X	Y	μ_α	μ_δ	m	Sp
			-12	- 9		
V	+10.9	-25.0	-19	+12	9.5	M7e
1	-66.7	+53.1	+31	- 4	10.8	...
2	-67.0	-69.1	-85	+15	10.0	G3
3	-28.8	+42.2	+17	+ 2	10.8	g5:
4	-28.3	-32.8	+37	-12	10.9	G0:
5	+15.5	+45.0	- 4	+11	11.0	...
6	+52.0	-26.1	+47	-16	10.7	g:
7	+53.5	-58.4	- 1	+13	9.7	K2
8	+69.7	+46.2	-48	- 8	10.6	F5:

S Vir 378 M 6.3-13.2

$13^h27^m.8$ -06° 41' 290° +53°

No.	X	Y	μ_α	μ_δ	m	Sp
			-16	-11		
V	+15.3	- 6.9	0	-16	10.1	M6 M7e
1	-40.2	-41.8	+10	-12	10.6	F8
2	-15.4	+ 0.6	+91	+55	9.9	...
3	-13.7	+34.7	- 3	-13	8.4	K0
4	- 9.9	+ 1.7	- 4	-10	10.9	K:
5	- 1.7	+13.4	-10	- 2	9.6	K5
6	- 0.9	+36.3	-83	-18	10.9	...
7	+30.6	-54.0	-10	+12	10.5	F:
8	+51.2	+ 9.1	+10	-12	9.1	G5

RV Cen 446 M 7.0-10.8

(Y) $13^h31^m.1$ -55° 58' 277° + 5°

No.	X	Y	μ_α	μ_δ	m	Sp
			- 7	- 5		
V	- 2.4	- 0.4	+ 3	+15	10.4	N
1	-73.4	+ 6.2	+ 6	- 2	11.6	...
2	-70.8	-13.5	-40	+ 2	10.5	g
3	-30.1	+45.2	+18	+17	10.5	A2:
4	-38.5	-52.5	+12	-20	11.2	f
5	+40.7	+24.4	+ 6	+21	12.1	...
6	+41.3	+57.7	-30	-40	11.3	...
7	+59.4	-57.3	+ 6	- 1	10.6	...
8	+61.4	-10.2	+18	+19	10.7	...

T UMi 314 M 8.5-15.0

$13^h32^m.6$ +73° 57' 86° +44°

No.	X	Y	μ_α	μ_δ	m	Sp
			- 9	+ 2		
V	+ 0.6	- 5.4	- 2	- 3	10.7	M4e
1	-60.3	+40.0	-29	+26	11.2	K:
2	-59.9	+55.1	+31	-27	11.3	G:
3	-50.7	- 7.2	+13	+ 2	11.9	K:
4	-48.2	-12.7	-15	- 2	12.1	...
5	- 2.0	-33.8	- 6	+ 1	11.5	...
6	+27.6	-24.4	-24	+18	11.6	G
7	+38.1	-37.8	+15	-16	11.7	...
8	+44.9	+24.0	+21	-16	11.9	...
9	+49.6	-41.1	+16	- 3	11.7	...
10	+51.7	+37.9	-22	+16	12.1	...

T Cen 91 SRa 5.5-9.0

$13^h36^m.0$ -33° 06' 283° +27°

No.	X	Y	μ_α	μ_δ	m	Sp
			-12	-10		
V	- 8.8	+17.1	-14	+21	9.7	K7e M3e
1	-44.0	-44.5	+12	- 2	10.3	G:
2	-38.3	+46.5	-12	+12	10.9	G:
3	-38.0	-29.3	+ 2	+ 9	10.6	K
4	-30.4	+ 6.9	- 2	-19	9.0	K2
5	+ 9.7	+45.2	+ 4	+20	10.8	G
6	+34.8	+ 1.4	+ 8	+ 6	10.6	G
7	+48.2	+17.8	+ 2	-20	10.7	K
8	+58.1	-44.0	-14	- 6	10.2	G

T Cen 91 SRa 5.5-9.0

(Y) $13^h36^m.0$ -33° 06' 283° +27°

No.	X	Y	μ_α	μ_δ	m	Sp
			-12	-10		
V	- 3.0	+ 4.4	- 9	+15	9.3	K7e M3e
1	-87.3	+ 9.6	+17	- 5	10.7	F2
2	-75.6	- 2.7	-38	+ 2	10.9	F8
3	-42.6	-63.1	+29	-11	10.3	F5
4	-12.8	+56.4	- 8	+14	11.0	A0
5	+23.9	- 9.2	+10	+ 5	11.1	g:
6	+59.8	+ 4.5	+ 5	-30	10.7	g
7	+64.7	+68.6	-14	+20	10.6	G0:
8	+70.0	-64.0	- 1	+ 4	10.2	G0

RT Cen 256 M 8.1-13.6

(Y) $13^h42^m.5$ -36° 22' 284° +24°

No.	X	Y	μ_α	μ_δ	m	Sp
			-13	-10		
V	+ 3.4	+ 3.9	+10	- 5	9.8	...
1	-64.3	+58.7	- 6	+ 1	10.7	...
2	-50.5	-64.2	-11	+16	10.7	...
3	-36.2	+32.3	+ 9	+10	11.0	f
4	-35.6	-10.2	+ 8	-27	10.6	g
5	+23.7	+ 5.8	- 2	+ 6	10.3	F5
6	+35.3	-21.4	+14	- 9	11.0	g:
7	+59.9	-61.9	-11	+20	10.2	g
8	+67.8	+60.9	- 1	-18	10.2	...

W Hya 382 SRa 7.7-11.6

$13^h43^m.4$ [illegible] 52' 287° +32°

No.	X	Y	μ_α	μ_δ	m	Sp
			- 9	- 8		
V	+ 3.6	-11.0	-40	-50	9.3	M8e
1	-58.6	+10.9	+46	+ 6	11.0	...
2	-58.5	-32.4	-50	-24	10.2	...
3	-47.6	+53.4	- 8	- 1	11.0	...
4	-26.8	-33.8	+12	+18	10.4	...
5	+29.3	+28.0	-20	- 8	10.5	...
6	+35.3	- 9.8	+ 9	+ 5	10.6	...
7	+63.3	+30.3	-17	+ 3	11.5	...
8	+63.6	-46.7	+29	0	10.9	...

R CVn 328 M 7.3-12.9

$13^h44^m.7$ +40° 02' 46° +72°

No.	X	Y	μ_α	μ_δ	m	Sp
			-13	- 3		
V	-15.0	+ 5.8	- 1	+13	10.9	M6e M8e
1	-45.5	-11.3	-19	- 7	10.1	K2
2	-44.8	+21.9	+ 7	+23	9.8	K2
3	-39.1	- 6.5	-30	+18	10.6	...
4	-38.8	+ 6.7	+41	-34	11.4	...
5	+19.4	-18.7	+33	-15	9.1	K2
6	+42.1	-18.3	- 1	- 7	11.1	K:
7	+44.5	- 0.6	+16	+11	10.7	K0
8	+62.2	+26.8	-48	+12	10.0	K0

RX Cen 328 M 8.7-15.0

(Y) $13^h45^m.6$ -36° 27' 284° +24°

No.	X	Y	μ_α	μ_δ	m	Sp
			-11	- 9		
V	-37.3	-21.7	- 1	-17	10.3	M5e
1	-70.8	-12.2	- 2	- 5	11.4	G0
2	-61.5	+37.9	- 6	-13	11.0	A5:
3	-44.4	-52.1	+ 2	0	10.8	F5
4	-40.4	+24.3	+ 6	+ 8	12.1	g
5	+24.8	-34.6	0	- 7	11.6	g5:
6	+45.8	+36.5	+ 6	- 4	10.6	g5K
7	+69.9	+55.7	- 7	+ 9	10.2	f8
8	+76.6	-55.5	0	+ 2	11.1	f:

Z Boo 281 M 8.2-15.0

$14^h01^m.7$ +13° 58' 328° +65°

No.	X	Y	μ_α	μ_δ	m	Sp
			-12	- 6		
V	- 8.7	-12.0	- 4	+ 7	10.6	M5e
1	-54.5	+36.0	+21	+ 6	10.4	K0
2	-51.0	-14.7	- 2	+25	11.7	...
3	-31.1	+26.4	-46	+24	9.7	F0
4	-28.7	-18.4	- 3	+ 7	11.2	K:
5	-20.5	+50.6	+29	-47	10.3	K0
6	-18.1	-31.7	+ 1	-16	10.1	G:
7	+28.5	-44.8	- 5	+19	11.8	...
8	+54.3	+30.2	- 4	+16	11.7	...
9	+59.4	-16.8	+ 1	-18	11.2	...
10	+61.7	-16.8	+ 9	-17	11.6	...

Z Vir 307 M 9.9-15.0

$14^h05^m.0$ -12° 50' 300° +44°

No.	X	Y	μ_α	μ_δ	m	Sp
			-16	-13		
V	+ 3.3	- 2.0	+ 6	+ 3	10.4	M5e
1	-57.2	+ 4.8	+ 4	0	10.1	K5
2	-44.1	+23.2	+ 5	+16	10.1	K5
3	-22.4	-53.1	+17	- 4	11.1	G5
4	-17.8	+ 5.3	+31	+ 8	11.1	K:
5	-11.3	- 2.2	+14	0	9.8	K5
6	- 4.7	- 9.1	-70	-20	9.0	G0
7	+ 7.1	+22.7	+24	-49	10.4	G5
8	+12.9	+29.7	-25	+ 5	10.9	G0
9	+24.1	+25.8	-38	+20	10.1	F8:
10	+33.6	-39.2	+38	- 5	11.0	...
11	+36.8	- 3.6	- 8	+14	9.5	F8
12	+43.0	- 4.3	+10	+14	11.9	...

RU Hya 334 M 7.2-14.3

(Y) $14^{h}05^{m}.8$ -28° 25' 292° +30°

No.	X	Y	μ_α	μ_δ	m	Sp
			- 8	- 7		
V	+ 3.5	+ 0.5	+13	-18	10.5	M6e
1	-67.9	-41.5	-47	-35	11.0	f::
2	-63.3	+50.3	+20	+10	10.4	F:
3	-40.3	+25.9	+ 2	+18	11.9	...
4	-28.3	- 3.0	+25	+ 8	12.8	...
5	+24.0	+ 3.5	-24	-11	11.0	...
6	+27.9	-21.0	+ 6	+ 9	12.0	...
7	+68.6	-53.8	+15	-18	11.5	A0
8	+79.5	+39.7	+ 2	-17	11.8	...

R Cen 547 M 5.4-11.8

(Y) $14^{h}09^{m}.4$ -59° 27' 281° + 1°

No.	X	Y	μ_α	μ_δ	m	Sp
			-13	-12		
V	- 0.4	+ 3.1	+ 3	+ 2	9.4	M4e M5e
1	-75.7	-46.9	- 4	+ 5	10.3	A:
2	-71.1	+47.9	+ 5	- 5	9.3	K
3	+64.9	+60.1	- 4	+ 5	9.1	G2
4	+81.9	-61.2	+ 4	- 5	9.5	g:

U UMi 326 M 7.4-12.7

$14^{h}15^{m}.2$ +67° 15' 76° +49°

No.	X	Y	μ_α	μ_δ	m	Sp
			-12	+ 4		
V	-12.4	+ 5.5	+ 1	+11	10.6	M6e
1	-57.8	+31.5	+26	-26	11.2	G0
2	-51.8	+35.2	- 2	-10	10.9	K0
3	-51.7	+36.3	-23	+29	11.4	F8
4	-25.5	+ 4.6	- 1	+ 3	11.1	K
5	-19.0	+14.1	0	+ 4	10.9	F8
6	+35.2	- 5.6	- 5	-35	11.8	...
7	+37.5	+22.4	+ 2	+ 4	8.6	K2
8	+38.4	+ 1.5	-25	+25	9.9	F5
9	+45.5	-46.1	+41	- 8	10.4	F8
10	+49.2	-21.3	-13	+14	11.6	K:

S Boo 271 M 8.0-13.8

$14^{h}19^{m}.5$ +54° 16' 62° +58°

No.	X	Y	μ_α	μ_δ	m	Sp
			-13	+ 2		
V	+ 5.2	- 2.5	+25	-18	9.8	M3e M5e
1	-43.5	- 4.4	+ 2	+ 7	10.0	K0
2	-40.4	-38.6	+36	+10	11.1	G0
3	-31.7	+40.1	-18	-29	11.1	G5
4	-31.0	+13.4	+10	+ 3	8.9	A
5	-30.3	+13.5	+14	+ 1	8.9	G0
6	-12.9	+10.5	-44	+ 7	10.6	G5
7	+10.3	-45.5	-68	+31	10.4	K0
8	+15.3	-43.8	+27	-25	10.2	G5
9	+25.8	+46.6	+34	+21	10.6	G0
10	+24.8	-19.6	+14	- 9	10.5	K0
11	+37.9	+47.5	+ 4	- 4	10.5	G0
12	+75.6	-19.6	-11	-15	8.4	K0

R Cam 270 M 7.9-14.4

$14^{h}25^{m}.1$ +84° 17' 87° +33°

No.	X	Y	μ_α	μ_δ	m	Sp
			-10	+ 6		
V	+10.4	-14.1	+ 2	- 7	10.3	S2.9e:
1	-80.5	-48.5	-12	+ 9	11.3	...
2	-66.9	+44.5	- 5	- 7	11.3	...
3	-18.0	+36.6	+10	-10	11.4	...
4	- 4.5	+ 6.4	+ 7	+ 7	8.4	K2
5	+32.2	+27.9	-13	+ 9	9.8	A0
6	+35.8	-20.4	+15	- 1	10.9	K:
7	+43.5	-33.9	- 2	-12	9.2	F8
8	+58.4	-12.6	0	+ 4	11.2	...

V Boo 258 SRa 7.0-11.3

$14^{h}25^{m}.7$ +39° 18' 34° +65°

No.	X	Y	μ_α	μ_δ	m	Sp
			-13	- 2		
V	+ 9.7	-13.2	+42	- 6	10.1	M6e
1	-60.6	-11.5	- 4	+34	10.8	G0:
2	-48.4	-43.4	-43	-17	9.9	K0
3	-21.9	+10.0	+131	-48	9.2	G5
4	-22.2	+40.0	-84	+32	11.6	G:
5	+ 3.5	+47.1	-47	-17	10.6	F8
6	+36.9	-35.6	+64	-14	10.5	K0
7	+43.0	- 1.1	+ 5	+19	11.2	G5
8	+69.7	- 5.5	-21	-23	11.8	...

R Boo 223 M 6.7-12.8

$14^{h}32^{m}.8$ +27° 10' 4° +65°

No.	X	Y	μ_α	μ_δ	m	Sp
			-11	- 4		
V	+21.9	- 2.0	-22	+26	10.2	M3e M5e
1	-48.7	-15.5	0	- 3	10.5	F8
2	-36.3	+39.3	+ 3	-16	11.4	F3
3	-12.4	+55.4	-16	- 6	10.5	G0
4	- 0.1	-56.5	-13	- 7	11.5	..
5	+ 8.5	+25.9	+ 4	-25	11.1	K0
6	+16.7	-55.2	+13	+10	11.2	..
7	+72.2	+ 6.6	-17	+16	10.6	K:

V Lib 255 M 9.0-15.0

$14^{h}34^{m}.8$ -17° 14' 305° +37°

No.	X	Y	μ_α	μ_δ	m	Sp
			-12	-12		
V	- 0.3	- 9.0	+ 5	+14	10.1	M5e
1	-46.8	-22.0	-23	- 8	9.3	F8:
2	-39.4	-48.7	+11	+ 1	10.5	..
3	-37.9	+ 5.1	-33	+ 5	10.4	K0
4	-15.8	+26.8	+18	+ 3	8.6	K2
5	- 4.3	+51.2	+26	- 1	10.6	K0:
6	+ 7.0	-31.2	-14	- 4	9.0	F8:
7	+59.1	+56.6	-11	- 7	9.5	G:
8	+78.1	-37.8	+25	+10	8.6	A:

RR Boo 195 M 8.0-12.8

$14^{h}43^{m}.2$ +39° 44' 330° +62°

No.	X	Y	μ_α	μ_δ	m	Sp
			-11	- 1		
V	-17.4	+ 2.1	- 3	0	9.7	M3e
1	-71.0	+56.9	+ 5	-12	9.7	G0
2	-68.6	-27.0	+ 7	- 5	10.2	K2
3	(-42.6	+14.5)	(-51	+76)	10.6	G5
4	-41.8	-25.8	-13	+14	10.4	K0
5	-29.3	+25.6	+ 2	+ 4	9.4	M0:
6	-28.7	- 9.3	-16	+ 7	9.5	K0
7	-13.8	-23.1	+14	- 8	12.3	...
8	+12.1	-24.9	- 9	+ 5	12.2	...
9	+32.8	+ 3.8	-36	0	12.1	...
10	+65.0	+16.9	+17	- 3	12.3	...
11	+66.2	+28.0	+12	+11	8.9	F0:
12	+77.0	-21.0	+17	-13	12.3	F2

U Boo 200 SRb 9.8-13.0

$14^{h}49^{m}.7$ +18° 06' 348° +58°

No.	X	Y	μ_α	μ_δ	m	Sp
			-11	- 5		
V	- 3.0	+ 4.5	+ 5	+24	10.7	M4e
1	-46.2	-18.5	+20	+60	10.2	G5
2	-31.2	-19.1	+40	+76	10.0	F2
3	-21.8	- 0.5	-70	-167	11.8	...
4	- 9.4	+55.9	+10	+11	11.4	G:
5	+15.8	+45.4	-10	-11	10.4	K0
6	+20.4	-12.0	+ 9	+10	11.4	...
7	+22.4	-11.7	-13	+26	10.5	K0
8	+50.0	-39.5	+14	-25	11.5	G:

RT Lib 252 M 8.2-14.6

$15^{h}00^{m}.8$ -18° 21' 309° +33°

No.	X	Y	μ_α	μ_δ	m	Sp
			- 8	- 9		
V	+13.9	- 1.2	+ 4	+ 1	10.9	M4pe
1	-54.0	- 8.2	+ 8	+31	10.9	K.
2	-36.6	-11.8	+ 4	+ 1	11.3	K:
3	-33.1	-32.7	- 8	-29	11.0	K:
4	-27.3	-19.8	- 3	- 3	9.6	K0
5	+30.7	- 3.6	+ 7	- 7	11.6	G0
6	+36.6	-13.0	0	- 5	11.0	M
7	+40.1	-11.6	- 4	+ 8	10.2	G5
8	+43.6	+51.1	- 3	+ 4	11.4	K2

RT Lib 252 M 8.2-14.6

(Y) $15^{h}00^{m}.8$ -18° 21' 309° +33°

No.	X	Y	μ_α	μ_δ	m	Sp
			- 6	- 6		
V	+ 0.7	- 0.9	+ 1	+ 6	11.1	M4pe
1	-66.9	-57.1	+ 4	+ 2	11.8	G
2	-37.6	+ 2.7	+ 1	- 6	12.7	K0
3	-19.0	+48.2	- 6	- 2	12.0	G
4	-13.6	-37.3	+ 1	+ 6	12.2	K:
5	+19.2	- 6.3	- 5	+ 6	11.6	G0
6	+25.6	+59.4	+ 4	+ 8	11.5	K2
7	+33.9	53.8	+ 1	0	11.4	K2
8	+58.5	-63.4	0	-14	11.9	G5

Y Lib 275 M 7.6-14.7

$15^{h}06^{m}.4$ -05° 38' 322° +41°

-10 -10

No.	X	Y	μ_α	μ_δ	m	Sp
V	+21.6	+ 2.9	0	- 4	10.3	M5e
1	-62.4	+30.5	-16	+ 7	11.7	...
2	-47.9	-25.8	-12	+ 7	10.5	G5
3	-42.4	-35.2	+27	- 2	10.3	G5
4	-24.5	-38.1	+ 1	-12	9.9	K0
5	+22.7	+32.9	- 5	- 4	8.7	K0
6	+41.0	+29.8	+19	-16	11.3	...
7	+46 1	-18.2	-16	+ 7	11.6	...
8	+67.4	+24.1	+ 2	+13	10.1	F8

S Lib 193 M 8.0-13.0

$15^{h}15^{m}.7$ -20° 02' 312° +39°

-10 -12

No.	X	Y	μ_α	μ_δ	m	Sp
V	+ 2.1	-16.7	+ 5	- 8	10.3	M2e
1	-49.8	+29.5	-27	+14	11.2	...
2	-47.7	+15.6	- 6	+ 5	11.0	...
3	-36.1	-38.7	+36	+19	10.4	G0
4	-10.7	-27.9	-19	-26	9.8	G0
5	- 6.1	-36.4	+17	-12	10.2	K
6	+38.3	+40.7	+46	-42	10.1	G0
7	+55.1	-30.6	-33	+19	10.0	F0
8	+57.0	+47.8	-13	+22	10.3	G0

RS Lib 217 M 7.0-13.0

$15^{h}18^{m}.5$ -22° 33' 311° +27°

- 8 -11

No.	X	Y	μ_α	μ_δ	m	Sp
V	+12.4	+ 1.4	+37	0	10.9	M7e M8e
1	-65.0	- 9.9	+28	+ 7	8.0	A0
2	-55.3	- 2.2	-72	-47	10.4	G0
3	-50.4	-31.8	+35	+32	9.8	K:
4	-48.3	+17.3	+10	+ 8	10.6	G0
5	+36.4	+ 3.0	+ 9	+18	8.9	K0
6	+55.6	+18.5	+ 9	-17	11.5	G:
7	+62.1	+25.9	-29	- 8	10.3	G:
8	+64.9	-20.8	+10	+ 7	11.5	G:

RS Lib 217 M 7.0-13.0

(Y) $15^{h}18^{m}.5$ -22° 33' 311° +27°

- 9 -11

No.	X	Y	μ_α	μ_δ	m	Sp
V	+13.7	+ 1.6	+45	- 3	8.9	M7e M8e
1	-71.6	-10.9	+29	+24	8.0	A0
2	-60 9	- 2.4	-72	-40	10.4	G0
3	-55.6	-35.0	+32	+15	9.8	K:
4	-53.2	+19.1	+11	+ 1	10.6	G0
5	+40.1	+ 3.3	+ 6	+15	8.9	K0
6	+61.2	+20.4	+ 9	-10	11.5	G:
7	+68.4	+28.5	-26	- 6	10.3	G:
8	+71.5	-23.0	+11	+ 1	[illegible]	G:

RU Lib 317 M 7.4-14.2

$15^{h}27^{m}.7$ -14° 59' 319° +31°

- 7 - 8

No.	X	Y	μ_α	μ_δ	m	Sp
V	+ 4.6	-13.5	- 4	+ 6	10.6	M5e M6e
1	-52.9	+27.0	+ 6	- 5	10.6	K:
2	-37.2	+41.5	- 3	+ 9	9.4	K0
3	-33.4	-19.4	-14	- 3	10.4	F2
4	- 5.4	-46.2	+10	- 1	11.1	K:
5	+22.5	+56.6	-14	-14	9.0	K0
6	+24.8	-44.0	+14	+13	10.9	K0
7	+33.7	+23.2	+11	[illegible]	10.4	F2
8	+48.0	-38.9	-11	- 9	9.8	F2

R Nor 490 M 6.5-13.9

(Y) $15^{h}28^{m}.8$ -49° 10' 295° + 3°

- 6 -10

No.	X	Y	μ_α	μ_δ	m	Sp
V	+ 0.5	- 2.2	+ 5	+ 2	10.0	M3e
1	-50.6	+51.6	+15	+ 5	11.4	A
2	-47.5	-41.7	- 3	+11	10.5	G:
3	-25.8	-49.7	- 4	-10	10.9	A5
4	-24.8	+50.0	- 8	- 5	11.1	F8
5	+13.5	-37.7	+ 3	0	10.3	K2
6	+41.7	-50.9	+13	+16	10.8	...
7	+45.6	-59.6	+ 4	- 1	10.6	B8
8	+47.9	+36.2	-20	-15	10.4	F5

S UMi 327 M 8.0-12.9

$15^{h}33^{m}.5$ +78° 58' 81° +36°

- 7 + 8

No.	X	Y	μ_α	μ_δ	m	Sp
V	-17.9	-17.5	-38	+ 1	9.9	M7e M9e
1	-62.9	-38.0	- 5	-10	11.4	...
2	-47.3	+26.5	-16	-14	11.0	...
3	-40.8	+31.0	+17	+16	11.3	..
4	-38.7	-49.4	+ 4	+ 9	10.3	G5:
5	+18.9	+33.5	+ 1	+ 4	11.1	G:
6	+35.1	-50.7	+ 2	+ 2	10.6	...
7	+53.8	+42.3	- 4	+ 2	10.0	K0
8	+81.9	+ 4.8	+ 1	- 8	10.6	F0

U Lib 226 M 9.0-15.0

$15^{h}36^{m}.2$ -20° 52' 316° +25°

- 7 -10

No.	X	Y	μ_α	μ_δ	m	Sp
V	- 8.8	- 2.4	+19	+12	10.2	M3e
1	-54.4	-20.7	+11	+10	10.2	K:
2	-44.3	- 3.9	+51	+23	11.1	G:
3	-36.5	+31.3	- 8	+31	11.9	...
4	-21.8	-18.8	-45	-52	11.0	...
5	- 2.3	-24.5	- 8	-12	9.7	K0
6	+42.8	+ 8.0	-42	-91	8.8	K:
7	+57.2	- 3.9	- 9	+31	10.9	...
8	+59.3	+32.5	+50	+60	10.8	K:

X CrB 241 M 8.5-14.2

$15^{h}45^{m}.2$ +36° 33' 25° +50°

- 9 0

No.	X	Y	μ_α	μ_δ	m	Sp
V	+ 2.2	-17.9	- 5	- 4	10.4	M5e M7e
1	-46.0	+ 1.9	-20	- 8	9.5	K0
2	-29.5	- 8 6	+ 9	+12	10.9	G:
3	-14.7	-51.9	+11	- 4	11.4	...
4	+ 4.6	+47.0	+10	+ 8	10.6	...
5	+14.3	-39.3	-20	- 8	10.2	K2
6	+71.3	+50.9	+10	0	10.1	...

V CrB 358 M 6.9-12.2

$15^{h}46^{m}.0$ +39° 53' 30° +50°

- 8 + 1

No.	X	Y	μ_α	μ_δ	m	Sp
V	-14.2	-14.3	+12	-19	9.6	N2e $C6_2$
1	-52.8	-24.7	+18	-42	11.0	F5
2	-35.4	+ 5.0	-16	+15	11.7	K:
3	-20.4	+ 3.5	-12	- 6	8.5	A0
4	- 8.2	-45.2	+ 9	+31	10.1	...
5	- 4.0	+30.5	+ 1	+ 2	11.4	K0
6	+ 8.6	+24.1	+ 5	+ 7	11.2	F2
7	+34.5	+38.2	+22	-19	9.4	K0
8	+77.7	-31.4	-27	+11	10.9	...

R Ser 357 M 5.7-14.4

$15^{h}46^{m}.1$ -15° 26' 354° +45°

- 7 - 4

No.	X	Y	μ_α	μ_δ	m	Sp
V	-11.7	+13.3	+ 9	-41	10.7	M6e M8e
1	-41.4	-20.8	-35	-16	11.3	G:
2	-38.1	+ 3.9	+ 3	- 3	11.6	...
3	-31.2	- 5.9	+15	+ 8	11.3	K:
4	-17.5	-34.1	+ 9	-13	10.7	K0
5	-17.0	+68.9	+17	+12	11.0	F2
6	- 4.0	-32.6	- 9	+12	10.9	F:
7	+28.4	+31.8	- 3	-11	12.1	...
8	+34.4	-16.8	+12	0	10.1	G0
9	+42.1	- 7.6	-17	- 1	11.5	...
10	+44.3	- 2.0	+ 8	+10	9 2	K0

R Lup 236 M 9.4-14 0

(Y) $15^{h}47^{m}.0$ -36° 00' 307° +12°

- 4 - 6

No.	X	Y	μ_α	μ_δ	m	Sp
V	+ 0.8	0.0	+12	+ 8	11.2	M5e
1	-73.2	- 2.3	- 8	- 7	11.5	..
2	-38.9	+48.8	- 3	+10	9.8	K0
3	-31.6	-47.2	+14	- 4	11.6	...
4	-21.6	+ 8.9	- 4	+ 2	11.8	...
5	+13.6	-28.7	- 7	+11	10.9	...
6	+37.0	+27.9	-24	+12	11.0	...
7	+56.1	-10.5	-14	+ 1	12.2	...
8	+58.7	+ 3.2	+31	-23	12.1	...

No.	X	Y	μ_α	μ_δ	m	Sp
R Lib		242	M		9.8-15.0	
	$15^h47^m.9$		-15° 56'		322° +27°	
			- 6	- 8		
V	+ 3.9	- 3.4	+29	+14	11.4	M5e
1	-54.5	-42.1	+ 2	+ 5	11.8	K:
2	-53.6	+32.8	- 1	+17	11.4	K:
3	-36.5	-26.2	+ 8	+ 2	11.4	...
4	-32.6	+36.2	-10	-24	11.1	F8
5	+28.9	+38.4	-10	-15	11.8	...
6	+41.2	-44.6	-11	-13	11.0	K:
7	+53.4	- 9.1	+ 1	+ 6	11.3	G:
8	+53.7	+14.7	+20	+23	11.3	G:

No.	X	Y	μ_α	μ_δ	m	Sp
R Lib		242	M		9.8-15.0	
(Y)	$15^h47^m.9$		-15° 56'		322° +27°	
			- 6	- 9		
V	+ 4.3	- 3.8	+20	+11	10.5	M5e
1	-60.0	-46.4	+ 1	+ 9	11.8	K:
2	-59.0	+36.1	- 3	+17	11.4	K:
3	-40.1	-28.9	+12	+ 2	11.4	...
4	-35.9	+39.8	- 9	-28	11.1	F8
5	+31.8	+42.4	-17	-14	11.8	...
6	+45.4	-49.1	-18	-13	11.0	K:
7	+58.8	-10.0	+ 6	+ 2	11.3	G:
8	+59.1	+16.2	+29	+25	11.3	G:

No.	X	Y	μ_α	μ_δ	m	Sp
RR Lib		277	M		7.8-15.0	
	$15^h50^m.7$		-18° 01'		321° +25°	
			- 5	- 7		
V	+16.7	-15.2	+16	+ 5	10.8	M4e
1	-54.1	+24.1	- 3	- 4	12.9	...
2	-50.4	-50.5	+ 8	- 4	10.1	K0
3	-27.5	-25.1	- 5	+ 7	11.5	G0
4	-23.7	+54.0	0	...	12.0	...
5	+20.0	+23.5	+27	+31	12.4	....
6	+41.9	-29.9	- 2	- 2	10.9	K0
7	+47.1	+45.2	-22	-28	11.2	K:
8	+46.7	-41.3	- 1	- 1	12 0	...

No.	X	Y	μ_α	μ_δ	m	Sp
RR Lib		277	M		7.8-15.0	
(Y)	$15^h50^m.7$		-18° 01'		321° +25°	
			- 6	- 9		
V	- 1.8	- 3.4	+15	- 1	9.8	M4e
1	-75.6	-42.4	+ 1	-24	10.1	K0
2	-50.4	-14.3	-13	- 7	11.5	G0
3	-46.5	+72.8	- 6	+19	12.0	F8
4	-18.0	+ 5.3	+18	+12	8.7	K2
5	+26.0	-19.5	+ 8	+ 2	10.9	K0
6	+31.5	+63.4	-12	-31	11.2	K:
7	+47.2	- 0.1	- 7	+25	10.6	K0
8	+85.8	-65.2	+11	+ 3	10.1	G5

No.	X	Y	μ_α	μ_δ	m	Sp
Z CrB		251	M		8.8-15.5	
	$15^h52^m.1$		+29° 32'		14° +48°	
			- 8	- 1		
V	-24.2	-16.2	-11	+40	10.3	M4e
1	-57.6	+18.2	- 7	-25	11.7	...
2	-41.7	-15.5	+36	-47	11.7	...
3	-39.1	-24.4	0	+13	11.6	...
4	-36.8	-23.6	- 1	+1'	11.0	K:
5	-27.6	+13.9	-19	+38	11.1	K0:
6	-14.4	+36.0	- 9	+ 4	11.5	...
7	+ 8.6	-15.1	-12	- 6	10.6	G0
8	+28.5	-45.0	- 7	+21	11.4	...
9	+33.2	+35.2	+20	- 2	11.3	...
10	+39.6	+30.7	+15	-14	11.3	...
11	+42.3	+ 3.0	0	0	11.2	K:
12	+65.0	-13.4	-16	+ 1	10.1	...

No.	X	Y	μ_α	μ_δ	m	Sp
RZ Sco		159	M		8 2-12.8	
	$15^h58^m.6$		-23° 50'		318° +19°	
			- 4	- 8		
V	+ 5.4	-16.7	- 2	-18	10.4	M4e
1	-55.7	-26.3	-10	- 2	10.5	F2
2	-52.8	+25.3	- 9	+ 3	11.8	g
3	-28.9	-47.2	0	+ 3	10.2	G5
4	-10.6	+26.5	+19	- 3	11.8	G
5	+27.6	+31.3	+ 1	+ 5	10 8	gk:
6	+37.4	-32.3	+ 9	- 4	10.9	G5
7	+40.8	-16.1	+ 1	+ 3	10.2	A1
8	+42.1	+38.9	-11	- 5	10.9	g5

No.	X	Y	μ_α	μ_δ	m	Sp
RZ Sco		159	M		8 2-12.8	
(Y)	$15^h58^m.6$		-23° 50'		318° +19°	
			- 4	- 8		
V	+ 7.3	-18 4	-11	-11	9.7	M4e
1	-60.1	-29.0	-10	+ 8	10.5	F2
2	-56.9	+27.9	-10	- 3	11.8	g
3	-30.5	-52.0	- 2	- 1	10.2	G5
4	-10.5	+29.2	+22	- 4	11.8	G
5	+21.6	+34.5	+ 1	+ 8	10.8	gk:
6	+42.5	-35.7	+10	-14	10.9	G5
7	+46.2	-17.8	+ 2	+ 7	10.2	A1
8	+47.7	+42.9	-13	- 1	10.9	g5

No.	X	Y	μ_α	μ_δ	m	Sp
Z Sco		352	M		8.7-13.4	
	$16^h00^m.1$		-21° 28'		320° +21°	
			- 5	- 9		
V	+ 7.2	- 6.9	+ 1	- 1	10.1	M6e M7e
1	-71.8	+ 6.6	-12	- 7	11.3	...
2	-67.3	-20.2	0	- 1	10.7	. .
3	-27.9	- 9.5	+ 6	+ 3	10.3	K5
4	- 7.0	+21.8	+ 6	+ 5	11.4	...
5	+11.3	+38.5	+ 5	+ 2	11.0	...
6	+30.5	-14.6	- 2	- 5	10.9	F0:
7	+63.2	-34.6	- 4	+ 3	11.6	...
8	+69.0	+12.0	+ 1	0	11.1	K:

No.	X	Y	μ_α	μ_δ	m	Sp
R Her		318	M		8.2-15.0	
	$16^h01^m.7$		+18° 38'		0° +43°	
			- 7	- 4		
V	- 8.2	- 3.8	- 1	+ 4	10.6	M6e
1	-63.5	+43.7	- 1	+11	11.4	F8
2	-40.4	-21.2	-11	+ 9	10.1	G0
3	-38.2	+12.1	-20	+20	10.8	K0
4	-13.3	-27.5	+ 8	+ 6	10.5	G0
5	- 9.3	-40.4	- 4	-45	10.9	F8
6	- 6.6	-31.7	+20	+ 2	10.4	F0
7	- 0 5	-46.6	+ 8	- 5	11.0	...
8	+14.2	-33.6	- 6	+38	9.0	K0
9	+20.5	+44.3	+10	-27	11.3	...
10	+22.0	+28.3	+ 2	0	11.3	...
11	+47.6	- 2.2	- 8	+ 1	10.0	G5
12	+67.4	-18.3	+ 2	-10	11.6	...

No.	X	Y	μ_α	μ_δ	m	Sp
U Ser		238	M		7.8-14.0	
	$16^h02^m.5$		+10° 12'		350° +39°	
			- 7	- 6		
V	+ 5.4	+16.8	- 4	+43	10.6	M3e
1	-63.7	+20.4	- 4	+13	9.1	A0
2	-45.1	-17.5	0	+14	10.5	K:
3	-40.1	+38.0	+ 4	-27	9.9	F8
4	+ 0 3	-54.2	+ 4	-40	9.7	F8
5	+34.7	-37.9	- 4	+26	10.4	K:
6	+53.9	+22.0	-42	- 6	9.7	G5
7	+60.0	+29.2	+42	+20	10.6	F8

No.	X	Y	μ_α	μ_δ	m	Sp
X Sco		200	M		10.2-14 6	
	$15^h02^m.7$		-21° 16'		320° +21°	
			- 5	-10		
V	+ 1.2	+ 1.2	+ 7	+ 1	11.0	M2e
1	-61.2	+42.3	-15	-18	9.8	K5
2	-60.2	-39.1	+ 3	+12	11.4	...
3	-19.3	+39.4	+15	+10	11.3	...
4	- 6.5	-16.3	- 3	- 4	10.6	...
5	+ 1.7	+22 0	+ 6	+13	11.5	...
6	+34.9	-42.2	-17	+ 3	11.7	...
7	+47.2	+ 1.3	- 7	- 5	10.8	...
8	+63.4	- 7.4	+17	-11	10 3	...

No.	X	Y	μ_α	μ_δ	m	Sp
RU Her		484	M		6.9-14.3	
	$16^h06^m.1$		+25° 20'		9° +44°	
			- 7	- 3		
V	-13.1	- 6.1	-16	- 9	10.6	M7e
1	-66.7	-29.9	0	0	9.0	F0
2	+32.7	-24 4	0	0	8.4	M0
3	+34.0	+54.3	0	0	9.0	F0

S Sco 177 M 9.9-15.5

$16^h 11.7^m$ -22° 39' 321° +18°

No.	X	Y	μ_α	μ_δ	m	Sp
			-3	-6		
V	+7.8	+3.6	-2	+1	11.6	M3e
1	-47.1	-33.4	+5	-18	11.2	...
2	-43.2	+5.1	+39	-29	11.6	...
3	-29.8	-44.0	+24	-3	12.0	...
4	-19.9	+15.3	-69	+50	11.1	...
5	+26.9	+43.6	+13	-8	12.2	...
6	+27.5	-6.4	-12	-7	11.7	...
7	+41.6	+47.7	+17	-13	11.4	...
8	+44.0	-27.9	-17	+22	11.6	...

S Sco 177 M 9.9-15.5

(Y) $16^h 11.7^m$ -22° 39' 321° +18°

No.	X	Y	μ_α	μ_δ	m	Sp
			-3	-6		
V	+8.5	+3.7	+1	+8	10.5	M3e
1	-51.6	-38.2	0	-16	11.2	...
2	-47.7	+7.7	+40	-34	11.6	...
3	-32.4	-49.5	+29	+2	12.0	...
4	-22.1	+16.0	-69	+48	11.1	...
5	+29.2	+48.3	+13	-7	12.2	...
6	+30.4	-6.9	-13	+2	11.7	...
7	+45.4	+53.0	+16	-8	11.4	...
8	+48.8	-30.3	-16	+12	11.6	...

R Sco 223 M 9.8-15.5

$16^h 11.7^m$ -22° 42' 321° +18°

No.	X	Y	μ_α	μ_δ	m	Sp
			-3	-6		
V	+6.8	-5.3	+10	+7	11.3	M3e
1	-47.1	-33.4	+5	-18	11.2	...
2	-43.2	+5.1	+39	-29	11.6	...
3	-29.8	-44.0	+24	-3	12.0	...
4	-19.9	+15.3	-69	+50	11.1	...
5	+26.9	+43.6	+13	-8	12.2	...
6	+27.5	-6.4	-12	-7	11.7	...
7	+41.6	+47.7	+17	-13	11.4	...
8	+44.0	-27.9	-17	+22	11.6	...

R Sco 223 M 9.8-15.5

(Y) $16^h 11.7^m$ -22° 42' 321° +18°

No.	X	Y	μ_α	μ_δ	m	Sp
			-4	-7		
V	+7.6	-6.2	+8	+4	10.2	M3e
1	-51.6	-37.6	+3	-15	11.2	...
2	-47.7	+8.1	+42	-37	11.6	...
3	-32.6	-49.2	+23	0	12.0	...
4	-22.0	+16.2	-68	+52	11.1	G:
5	+29.3	+48.0	+11	-7	12.2	...
6	+30.3	-7.2	-13	-4	11.7	...
7	+45.5	+52.5	+15	-7	11.4	K:
8	+48.7	-30.8	-13	+16	11.6	...

W CrB 238 M 7.8-14.3

$16^h 11.8^m$ +38° 03' 27° +45°

No.	X	Y	μ_α	μ_δ	m	Sp
			-7	+1		
V	-0.6	0.0	-4	+1	9.7	M2e M4e
1	-65.1	+23.7	-25	-4	10.8	K2
2	-45.5	-3.1	+12	-7	11.5	K2
3	-42.9	-22.3	-26	+14	11.5	K0
4	-27.9	-27.1	+17	+5	11.4	G5
5	-27.1	+57.0	+16	-21	9.6	K0
6	-23.1	-18.2	+6	+13	10.0	F8
7	+20.2	+8.5	+9	+13	10.2	F8
8	+22.2	-31.5	-34	-55	10.9	K
9	+35.8	-12.6	+22	+8	11.0	G0
10	+47.9	+25.8	-6	+1	10.8	K
11	+50.8	+20.8	+7	+11	10.9	G0
12	+54.5	-20.8	+3	+21	11.2	G0

V Oph 298 M 7.3-11.0

$16^h 21.2^m$ -12° 12' 330° +23°

No.	X	Y	μ_α	μ_δ	m	Sp
			-5	-10		
V	-1.4	-25.3	+23	+14	9.6	N3e $C6_3e$
1	-75.2	+50.1	-21	+18	11.3	...
2	-35.7	-41.2	+13	0	10.7	G:
3	-32.9	+14.2	-2	0	9.5	K0
4	-29.6	-47.6	+10	-17	11.2	K:
5	+12.8	+20.5	+6	+15	10.2	G0
6	+28.4	+48.2	+17	-33	9.8	F8
7	+63.5	-32.5	+21	+9	11.0	...
8	+68.9	-11.8	-44	+8	10.8	K0

V Oph 298 M 7.3-11.0

(Y) $16^h 21.2^m$ -12° 12' 330° +23°

No.	X	Y	μ_α	μ_δ	m	Sp
			-5	-9		
V	+4.8	-3.7	+13	+10	11.6	N3e $C6_3e$
1	-71.5	+61.8	+14	+2	11.3	...
2	-70.3	-68.2	-7	-5	11.7	...
3	-29.4	+40.2	0	-2	9.5	K0
4	-26.5	-27.9	-7	+4	11.[illegible]	K:
5	+17.8	-50.5	-1	-12	11.1	...
6	+21.1	+46.6	+16	-4	10.2	G0
7	+76.3	-12.3	+15	+12	11.0	...
8	+82.5	+10.4	-30	+3	10.8	K0

U Her 406 M 7.0-13.4

$16^h 21.4^m$ +19° 07' 3° +39°

No.	X	Y	μ_α	μ_δ	m	Sp
			-5	-3		
V	+17.4	-4.5	-11	-9	10.2	M7e M8e
1	-56.4	+50.2	-6	+6	9.0	K2
2	-47.5	+24.2	+9	+4	11.0	F8
3	-43.5	-12.0	-6	-9	10.5	F8
4	-12.4	-4.0	+2	+13	10.8	F5
5	+9.4	+5.0	+10	-16	9.4	K5
6	+36.3	-29.9	-3	0	10.3	K0
7	+42.1	-2.9	-12	-11	10.9	K:
8	+72.0	-30.6	+5	+13	11.0	K:

Y Sco 352 M 10.9-15.0

$16^h 23.8^m$ -19° 08' 326° +18°

No.	X	Y	μ_α	μ_δ	m	Sp
			-2	-5		
V	+11.7	+6.6	+11	+11	12.6	...
1	-55.4	+36.6	-3	+3	11.6	...
2	-53.4	-7.7	-71	-29	10.8	...
3	-44.3	-59.5	+45	+28	12.5	...
4	-21.5	+14.7	+28	-3	11.0	...
5	+15.6	+46.1	-17	+18	11.8	...
6	+29.3	-46.4	+33	+11	12.9	...
7	+56.6	+19.3	-9	-18	13.3	...
8	+72.9	-5.2	-7	-10	12.9	...

T Oph 367 M 8.8-14.2

$16^h 28.0^m$ -15° 55' 329° +19°

No.	X	Y	μ_α	μ_δ	m	Sp
			-3	-7		
V	-16.8	-13.0	+7	+8	9.4	M(6)e
1	-60.2	-13.9	+13	-10	11.6	...
2	-48.7	+24.4	-52	+32	11.7	...
3	-40.3	+35.9	+20	-27	10.4	K0
4	-14.9	-37.5	+19	+5	11.4	...
5	+13.6	-28.0	+15	+5	10.8	G:
6	+40.0	-30.4	-47	0	11.0	K:
7	+47.8	+30.3	-11	-16	10.2	K0:
8	+62.7	+18.8	+43	+14	11.9	...

SS Her 107 M 8.5-13.2

$16^h 28.1^m$ +07° 04' 350° +32°

No.	X	Y	μ_α	μ_δ	m	Sp
			-4	-5		
V	+12.2	-8.3	+4	+3	10.4	M3e
1	-66.0	+0.6	+4	-8	11.2	...
2	-56.2	-5.0	-14	+13	12.0	...
3	-23.1	+31.6	0	+2	10.3	K0
4	-18.3	-42.8	+10	-7	11.3	...
5	+30.6	+38.1	-2	+1	10.5	K0
6	+39.0	-15.4	-4	-3	10.9	...
7	+41.6	-29.5	+9	-4	11.3	...
8	+52.4	+22.4	-2	+6	10.6	A:

S Oph 234 M 9.0-14.7

$16^h 28.5^m$ -16° 57' 328° +19°

No.	X	Y	μ_α	μ_δ	m	Sp
			-3	-6		
V	+5.2	+2.5	-5	0	10.6	M5e
1	-54.5	-23.1	-22	+1	10.0	K5
2	-41.3	+40.0	+6	+15	11.6	...
3	-32.4	+29.1	+7	-10	11.5	...
4	-30.8	-25.1	+9	-7	12.0	...
5	+10.7	27.9	+6	+7	12.1	...
6	+42.3	+15.4	+12	+19	10.5	...
7	+44.6	+3.8	-25	-25	11.0	...
8	+61.4	-32.2	+7	-1	11.6	...

R UMi 324 SRa 8.8-11.0

$16^{h}31^{m}.3$ +72° 30′ 72° +36°

No.	X	Y	μ_α	μ_δ	m	Sp
			- 5	+ 9		
V	+16.6	-10.7	+15	+ 9	9.7	M7e
1	-64.1	+16.8	-13	+31	9.8	G5
2	-56.9	-25.4	+22	-11	9.4	A2
3	-47.8	+51.4	- 6	-34	10.8	G0
4	-27.3	-25.7	- 3	+14	10.3	K0
5	+39.5	+19.5	+14	- 2	9.6	K2
6	+45.3	+27.2	+ 4	+ 5	9.1	A2
7	+46.9	-28.5	-16	0	9.7	G0:
8	+64.4	-35.3	- 1	- 3	10.6	A0

W Her 280 M 7.7-14.4

$16^{h}31^{m}.7$ +37° 33′ 27° +41°

No.	X	Y	μ_α	μ_δ	m	Sp
			- 5	+ 1		
V	+14.4	- 9.8	- 2	+22	10.9	M3e
1	-67.9	-11.2	-14	-22	11.5	G0
2	-41.0	+38.0	- 6	+10	9.9	K2
3	-14.6	+50.6	+ 4	+ 1	11.0	K0
4	-11.6	-38.5	+16	+11	11.5	A2
5	+24.5	+ 8.5	+ 7	+ 4	9.5	K5
6	+26.9	-12.6	+ 5	+ 7	11.3	G5
7	+35.1	+15.3	- 5	-15	10.7	G5
8	+48.6	-50.2	- 7	+ 4	11.4	G0

R Dra 246 M 6.9-13.0

$16^{h}32^{m}.4$ +66° 58′ 65° +38°

No.	X	Y	μ_α	μ_δ	m	Sp
			- 7	+11		
V	- 7.4	+ 0.1	- 9	+ 6	9.9	M5e M7e
1	-35.2	+ 8.1	+18	+15	9.2	F8
2	-30.2	- 5.9	+ 1	-33	9.4	K0
3	-23.8	+22.2	-19	+18	10.1	G5
4	+22.8	-55.0	- 1	+33	10.2	F8
5	+27.0	+14.8	+12	- 9	10.3	F0
6	+59.4	+15.8	-12	-24	9.8	F8

RR Oph 293 M 8.1-14.9

$16^{h}43^{m}.2$ -19° 17′ 328° +14°

No.	X	Y	μ_α	μ_δ	m	Sp
			- 4	-10		
V	-20.1	+18.4	+ 8	0	10.0	M3e
1	-58.3	+34.8	+ 4	+ 2	10.0	A5
2	-52.5	- 0.3	-14	+10	10.4	G:
3	-40.6	-30.8	+ 2	- 3	10.5	G:
4	-31.6	+10.9	+ 7	- 8	10.8	G:
5	+ 8.4	+21.2	-10	-11	10.2	K:
6	+45.3	-13.6	- 1	+ 2	10.7	G0
7	+61.5	+13.4	- 2	+17	10.5	A2
8	+67.8	-35.6	+13	- 9	10.0	G5:

RR Oph 293 M 8.1-14.9

(Y) $16^{h}43^{m}.2$ -19° 17′ 328° +14°

No.	X	Y	μ_α	μ_δ	m	Sp
			- 3	- 7		
V	+ 1.5	- 0.4	- 2	- 2	10.0	M3e
1	-60.7	+50.6	- 3	- 7	13.1	...
2	-55.5	-60.8	+ 9	- 2	11.5	...
3	-42.0	+20.7	+ 7	- 8	11.8	...
4	-34.0	-21.0	-13	+17	10.4	G:
5	+11.6	+39.1	-15	- 8	10.9	...
6	+12.4	-48.5	0	-24	12.2	...
7	+73.7	-35.8	+ 3	+ 9	10.7	G
8	+94.6	+55.7	+11	+23	11.7	...

S Her 307 M 7.0-13.8

$16^{h}47^{m}.4$ +15° 07′ 1° +33°

No.	X	Y	μ_α	μ_δ	m	Sp
			- 3	- 4		
V	- 0.9	- 0.5	+18	+18	10.4	M5e M7e
1	-54.2	+ 3.2	- 5	+ 1	11.0	K:
2	-44.3	-17.5	- 1	+11	8.8	K2
3	- 9.9	+60.8	+ 6	-12	10.6	...
4	+ 5.4	- 4.7	- 3	+15	10.5	...
5	+ 8.8	-31.0	- 5	-56	9.9	K0
6	+27.2	-33.3	+ 5	+ 8	10.6	G0
7	+32.6	+31.9	- 1	+11	11.7	...
8	+34.4	- 9.4	+ 3	+22	10.8	G:

RS Sco 320 M 6.2-13.0

(Y) $16^{h}48^{m}.4$ -44° 56′ 309° - 2°

No.	X	Y	μ_α	μ_δ	m	Sp
			- 2	- 9		
V	+18.3	-21.0	+21	-19	9.5	M5e M8e
1	-66.0	-59.9	0	+11	11.4	...
2	-65.6	+61.2	- 2	- 6	10.9	...
3	-24.4	+12.6	- 3	- 2	10.4	G5:
4	-19.6	-10.2	+ 5	- 3	10.9	A0
5	+14.5	+17.2	- 1	+10	10.2	A0
6	+33.3	-24.4	- 5	0	10.7	...
7	+62.8	-42.8	0	- 9	11.0	...
8	+64.9	-46.2	+ 5	- 2	10.8	...

RR Sco 280 M 5.0-12.4

(Y) $16^{h}50^{m}.3$ -30° 25′ 320° + 7°

No.	X	Y	μ_α	μ_δ	m	Sp
			- 3	- 9		
V	+ 2.3	+ 1.3	-14	- 6	9.3	M5e M8e
1	-78.1	+31.4	+ 2	+ 5	10.5	A1
2	-69.0	-58.7	-11	- 7	10.1	G8:
3	-39.2	-11.0	+ 5	+ 4	10.2	A0
4	-17.6	+51.5	+ 3	- 2	9.5	M0
5	+23.9	+44.1	- 2	- 3	10.8	G0
6	+35.5	-23.3	+ 4	+ 1	12.5	...
7	+71.6	+28.8	- 4	- 1	9.9	A3
8	+72.9	-62.8	+ 2	+ 3	11.0	K:

SS Oph 180 M 7.8-14.5

$16^{h}52^{m}.6$ -02° 36′ 344° +22°

No.	X	Y	μ_α	μ_δ	m	Sp
			- 3	- 8		
V	+11.5	+ 6.0	+ 4	+ 5	9.0	M2e
1	-46.1	+12.7	+ 2	- 6	10.5	K0
2	-33.3	+63.3	- 4	+ 7	9.0	F0
3	-19.5	-37.9	+21	- 7	8.5	A0
4	- 4.2	-19.6	-19	+ 7	9.3	K0
5	+47.0	+15.7	+ 2	0	9.5	K2
6	+56.0	-34.2	- 2	0	8.7	F0

RV Her 205 M 9.0-15.5

$16^{h}56^{m}.7$ +31° 22′ 20° +36°

No.	X	Y	μ_α	μ_δ	m	Sp
			- 4	0		
V	+22.5	- 8.5	- 1	0	10.4	M2e
1	-62.3	-25.8	-31	+85	10.1	K0
2	-52.9	-44.7	+20	-50	10.3	G0
3	-35.7	+18.7	+12	-21	10.3	...
4	- 8.4	+35.7	- 1	-14	9.7	K5
5	+15.5	-30.8	-19	+ 2	9.9	G:
6	+31.2	+17.0	- 9	+12	11.2	...
7	+55.1	+35.6	- 1	+22	9.6	K2
8	+57.5	- 5.9	+29	-36	8.8	F0

RT Sco 448 M 7.0-14.6

(Y) $16^{h}56^{m}.8$ -36° 47′ 316° + 2°

No.	X	Y	μ_α	μ_δ	m	Sp
			- 3	-11		
V	+ 2.3	+ 1.1	- 3	+ 9	9.1	M6e M7e
1	-78.1	+40.2	+ 6	+ 1	10.6	g:
2	-72.5	-60.0	-15	-10	10.4	G2
3	-19.8	+41.8	+ 1	+ 2	10.4	A1
4	-11.8	-12.3	+ 8	+ 8	10.8	A2
5	+17.9	- 5.5	+ 8	+ 7	10.9	[illegible]
6	+39.4	-62.3	- 1	- 4	10.6	f
7	+56.5	+ 8.6	0	+ 7	9.7	A
8	+68.4	+49.6	- 6	-10	10.1	G

SY Her 117 M 8.4-14.0

$16^{h}57^{m}.3$ +22° 37′ 10° +32°

No.	X	Y	μ_α	μ_δ	m	Sp
			- 4	- 3		
V	+ 5.3	- 4.9	+24	- 8	10.1	M1e
1	-48.2	+ 7.1	- 3	+ 2	9.8	G0
2	-45.2	-20.9	- 5	- 4	9.9	K2
3	-31.3	-16.3	+ 7	+ 3	10.3	A5
4	+ 4.0	+40.1	- 6	- 9	9.6	G:
5	+20.7	-23.1	-28	-18	9.4	G5
6	+44.1	+38.9	+ 9	+ 7	11.3	K0
7	+55.8	-25.8	+25	+19	10.4	K5:

R Oph 302 M 7.0-13.6

$17^h02.0^m$ -15° 58' 334° +13°

No.	X	Y	μ_α	μ_δ	m	Sp
			-2	-6		
V	-17.2	+5.3	-21	-4	10.4	M4e M6e
1	-65.3	+29.6	+10	+8	10.2	A0
2	-54.9	+46.4	-3	+16	11.6	A
3	-52.9	-55.5	+17	+9	9.2	A0
4	-33.9	-11.0	-24	-33	11.1	K0
5	+45.6	-55.4	+5	+10	11.5	...
6	+50.0	+50.3	-7	-24	9.8	F0
7	+53.4	-35.2	+2	+15	11.8	...
8	+58.0	+30.8	0	+1	10.1	A0

Z Oph 348 M 7.6-13.2

$17^h14.5^m$ +01° 37' 351° +20°

No.	X	Y	μ_α	μ_δ	m	Sp
			-2	-6		
V	-8.5	+0.5	-5	+10	10.6	M2e
1	-69.6	-47.2	+20	+6	10.2	...
2	-60.7	+3.3	-13	-14	11.4	...
3	-59.0	+39.2	-10	+7	11.6	...
4	-9.2	+25.6	+3	+1	11.7	...
5	+8.8	+27.1	+9	+4	10.1	K0
6	+58.8	+2.6	+21	+2	10.9	...
7	+62.0	-25.9	-18	-2	9.3	K:
8	+68.9	-24.7	-12	-4	11.6	...

RT Oph 425 M 8.6-15.5

$17^h51.9^m$ +11° 11' 4° +16°

No.	X	Y	μ_α	μ_δ	m	Sp
			0	-4		
V	+2.6	+10.6	-8	-3	10.5	M7e
1	-43.0	-27.5	-6	+2	10.4	G:
2	-41.7	+21.5	+3	-1	10.9	G0:
3	-10.5	-5.5	+4	+2	11.8	...
4	-1.5	+28.3	-1	-2	9.5	A0
5	+15.5	+47.9	-5	+3	11.5	K0
6	+17.1	-46.1	+1	+3	10.7	K0
7	+23.0	+17.2	+3	0	9.8	A:
8	+41.0	-35.8	+1	-6	11.6	...

R Oph 302 M 7.0-13.6

(Y) $17^h02.0^m$ -15° 58' 334° +13°

No.	X	Y	μ_α	μ_δ	m	Sp
			-2	-7		
V	+1.3	-2.0	-30	-17	9.1	M4e M6e
1	-51.4	+25.8	+4	-7	10.2	A0
2	-39.7	+44.1	-7	+1	11.8	A:
3	-39.0	-68.3	+2	-1	9.2	A0
4	-28.7	-58.7	+1	+6	9.5	K2
5	+5.5	-16.7	+1	+10	11.5	A:
6	+10.3	+59.0	+5	+6	10.0	K2
7	+58.5	-10.0	-3	-15	10.7	K:
8	+84.6	+24.7	-2	0	10.1	A0

RS Her 219 M 7.4-12.9

$17^h17.5^m$ +23° 01' 13° +28°

No.	X	Y	μ_α	μ_δ	m	Sp
			-2	-2		
V	+1.0	-7.9	-23	-3	10.6	M5e M6e
1	-71.4	-36.8	+11	-5	9.9	K:
2	-60.0	+29.[illegible]	-19	+18	10.9	F8
3	-31.1	+36.0	+16	-12	10.3	G5
4	-25.8	-42.4	-8	0	11.6	...
5	+29.9	-32.7	0	-8	9.6	K0
6	+38.0	-15.6	-4	+13	9.1	A0
7	+59.8	+27.5	-4	-5	9.8	K:
8	+60.6	+34.9	+7	-1	10.1	K:

T Dra 422 M 7.2-13.5

$17^h54.9^m$ +58° 14' 54° +29°

No.	X	Y	μ_α	μ_δ	m	Sp
			0	+6		
V	+4.0	+4.2	-4	+28	12.2	N0e C8e
1	-64.0	+18.5	-1	+1	10.5	K0
2	-55.8	+40.6	0	+15	11.2	..
3	-39.6	-9.9	-3	-11	10.8	G0
4	-10.8	-47.8	+5	-5	10.9	K0
5	+18.1	-48.6	+4	+12	11.2	G0
6	+45.8	+47.9	+5	-4	9.5	K0
7	+51.2	-47.4	-6	+4	10.5	K0
8	+55.2	+46.6	-3	-12	10.6	F5

RT Her 29[illegible] M 8.5-15.5

$17^h06.8^m$ +27° 11' 16° +32°

No.	X	Y	μ_α	μ_δ	m	Sp
			-2	-1		
V	+9.4	-4.1	+4	-9	11.5	M4e
1	-70.9	+48.1	-4	+1	11.2	K0:
2	-49.1	-13.9	0	-10	11.9	...
3	-34.1	-35.0	-4	+6	11.8	K:
4	-4.3	+17.4	+8	+3	10.9	K0
5	+32.2	+12.7	-14	+7	11.3	G:
6	+32.3	-26.1	-9	-2	11.1	K0
7	+42.9	-42.3	+13	+6	11.9	...
8	+51.0	+39.1	+9	-11	11.1	G5

RU Oph 202 M 8.6-14.2

$17^h28.1^m$ +09° 30' 0° +20°

No.	X	Y	μ_α	μ_δ	m	Sp
			-2	-5		
V	+11.2	-7.4	-21	+1	10.0	M3e
1	-50.0	+32.3	+6	+23	11.4	K0
2	-44.3	-13.4	0	-3	11.1	G0
3	-21.2	-36.3	-12	-21	11.2	F8
4	-19.9	+36.5	+8	0	10.2	K0
5	+20.6	+20.7	-1	0	10.5	K5
6	+21.4	-38.7	+10	+6	9.7	K5
7	+44.3	+29.9	-11	-23	10.1	F2
8	+49.2	-31.0	+2	+17	8.6	F2

RY Her 221 M 8.3-14.1

$17^h55.4^m$ +19° 29' 13° +19°

No.	X	Y	μ_α	μ_δ	m	Sp
			0	-3		
V	+1.5	+8.6	+7	+7	10.0	M4e M6e
1	-54.1	-38.4	-14	+15	10.2	K0
2	-39.6	-11.2	0	+5	9.9	F8
3	-31.4	+10.3	+24	-25	9.9	G0
4	-25.5	+36.7	-10	+5	11.2	...
5	+16.6	-34.1	+21	-30	10.7	K0
6	+31.0	-38.7	-7	+10	10.4	(G:)
7	+40.9	+32.3	-21	+13	8.6	G5
8	+62.1	+43.1	+7	+7	9.3	F2

RW Sco 369 M 8.8-15.0

(Y) $17^h08.3^m$ -33° 19' 320° +2°

No.	X	Y	μ_α	μ_δ	m	Sp
			-2	-8		
V	+6.0	-2.0	+11	+21	11.4	M5e
1	-72.0	-41.4	-11	+13	11.1	...
2	-64.2	+52.3	+1	-39	11.1	...
3	-23.3	+22.6	+5	-4	12.1	A
4	-10.8	-26.3	+5	+30	11.8	A
5	+12.7	-26.3	+5	-137	10.5	M
6	+15.0	+47.3	+4	+9	11.7	...
7	+66.3	-60.9	0	+95	11.6	A:
8	+76.3	+32.6	-10	+34	11.3	g5:

U Ara 225 M 7.7-14.1

(Y) $17^h45.7^m$ -51° 39' 308° -14°

No.	X	Y	μ_α	μ_δ	m	Sp
			-1	-14		
V	+0.7	-2.9	-7	+4	8.3	M3e M5e
1	-87.6	-70.5	+11	-8	9.9	B9
2	-72.8	+52.5	-10	0	10.6	G2
3	-6.9	+42.5	-2	+9	9.5	G8
4	+36.4	+28.7	-6	+42	9.5	G8
5	+65.4	-72.5	-11	+9	11.0	G2
6	+65.5	+19.3	+17	-51	8.7	K0

V Dra 278 M 9.5-14.7

$17^h56.3^m$ +54° 53' 50° +29°

No.	X	Y	μ_α	μ_δ	m	Sp
			0	+6		
V	-9.4	-19.9	0	-4	10.6	M4e
1	-52.9	-43.2	-10	-31	10.5	G5
2	-51.4	-22.7	+3	-4	10.7	G0
3	-27.4	+41.2	+18	+2	10.0	K:
4	-11.5	+41.6	-11	+33	10.1	G5
5	+29.6	+38.0	-24	-19	10.9	G5
6	+36.2	-52.6	+21	+24	10.8	K:
7	+37.1	-14.4	-14	+11	11.5	...
8	+40.3	+12.0	+17	-16	10.0	K2

No.	X	Y	μ_α	μ_δ	m	Sp
R Pav		230	M		7.5-13.8	
(Y)	$18^h03^m.3$		-63° 38'		298° -21°	
			0	-12		
V	-32.2	+15.0	-21	+30	11.1	M4e
1	-66.3	+ 7.5	- 3	+ 2	10.8	G5
2	-62.2	-60.0	- 6	-18	10.9	F5
3	-42.2	+69.0	0	+12	11.9	g
4	-12.7	-20.6	+ 9	+ 3	10.8	A5
5	+22.7	+49.4	- 5	+ 5	10.9	gk
6	+45.2	-30.3	- 8	+ 1	11.3	k
7	+55.2	+42.2	+ 7	-19	11.0	g:
8	+60.3	-57.1	+ 5	+13	12.0	a:

No.	X	Y	μ_α	μ_δ	m	Sp
T Her		165	M		7.1-13.6	
	$18^h05^m.3$		+31° 00'		25° +21°	
			0	0		
V	+ 8.4	+ 6.5	- 2	+11	10.2	M2e M4e
1	-58.8	+27.2	- 2	- 9	11.2	F5
2	-44.5	+10.2	+ 4	+ 6	10.4	F2
3	-35.2	-56.5	- 1	+ 3	9.8	K5
4	+24.6	+29.3	- 4	-12	10.7	F0
5	+49.2	-38.1	+ 1	- 3	11.0	K0
6	+64.7	+17.9	+ 3	+15	11.3	K:

No.	X	Y	μ_α	μ_δ	m	Sp
W Dra		262	M		9.0-15.0	
	$18^h05^m.5$		+65° 57'		63° +28°	
			0	+ 7		
V	+10.1	-20.9	- 5	+18	10.2	M3e M4e
1	-58.7	+49.7	-10	+10	10.6	F2
2	-48.2	+24.4	+ 2	0	10.5	F2
3	-38.9	-16.8	+ 9	- 5	10.4	F0
4	- 8.1	-16.3	- 1	- 5	10.7	...
5	+ 8.2	-35.2	-20	- 2	10.2	K0
6	+33.2	-43.6	+13	+12	10.7	F2
7	+34.5	+14.4	+ 3	+14	10.9	K2
8	+78.0	+23.3	+ 4	-24	10.9	...

No.	X	Y	μ_α	μ_δ	m	Sp
TV Her		303	M		9.0-14.6	
	$18^h11^m.0$		+31° 47'		26° +20°	
			+ 1	0		
V	+10.0	- 9.7	-11	- 8	9.8	M4e
1	-49.2	+35.9	-14	-13	11.4	...
2	-41.2	- 3.1	- 6	+ 2	10.6	...
3	-33.5	-38.0	- 4	+ 1	10.4	F5
4	- 3.1	+ 7.1	+24	+10	10.5	F8
5	+11.1	+13.2	- 7	-13	10.8	A
6	+30.6	-18.9	+ 5	- 8	11.0	A5:
7	+37.9	+49.6	- 3	+16	10.8	...
8	+47.2	-45.8	+ 6	+ 5	9.4	F8

No.	X	Y	μ_α	μ_δ	m	Sp
W Lyr		196	M		7.5-13.0	
	$18^h11^m.5$		+36° 38'		31° +21°	
			+ 1	+ 2		
V	+ 9.2	+ 2.6	+ 7	+ 7	9.8	
1	-42.1	-38.2	+16	- 1	10.3	A5
2	-40.2	+55.7	+ 2	-23	9.1	K0
3	-37.4	+ 7.3	- 1	- 9	9.4	F8
4	-20.6	-33.9	-18	+33	10.7	K0
5	+ 9.9	-35.5	-11	-52	10.1	G5
6	+37.0	+55.3	- 6	+14	9.9	K0
7	+42.4	-41.0	+13	+20	9.0	K0
8	+51.0	+30.3	+ 5	+18	10.6	A0

No.	X	Y	μ_α	μ_δ	m	Sp
RY Oph		150	M		7.6-13.8	
	$18^h11^m.6$		+03° 40'		0° + 5°	
			+ 1	- 5		
V	+ 0.5	-13.1	- 8	+13	10.4	M4e M5e
1	-37.1	+40.0	+ 2	+ 9	10.0	A:
2	-36.3	-44.6	- 2	- 9	10.7	A0
3	+35.3	-29.3	+ 2	+ 9	11.4	...
4	+38.1	+33.9	- 2	- 9	10.2	F5

No.	X	Y	μ_α	μ_δ	m	Sp
RV Sgr		318	M		7.2-14.8	
(Y)	$18^h21^m.4$		-33° 23'		328° -11°	
			+ 1	- 8		
V	- 7.5	+ 4.8	+11	0	9.8	M5e
1	-53.0	-42.5	- 6	0	10.1	K:
2	-52.4	+21.3	- 3	-12	11.3	K:
3	-43.6	+45.7	+ 6	+ 1	10.1	A0
4	-27.7	-36.6	+ 2	+11	11.0	A0
5	+24.7	-10.1	+ 4	+ 7	11.9	...
6	+30.5	+14.6	- 5	+ 6	11.4	A0
7	+60.5	-35.3	- 1	-18	11.2	...
8	+61.0	+42.9	+ 2	+ 5	11.0	K:

No.	X	Y	μ_α	μ_δ	m	Sp
SV Her		239	M		9.1-15.0	
	$18^h22^m.3$		+24° 56'		21° +15°	
			+ 1	- 1		
V	+ 7.6	- 0.1	0	- 6	10.5	M5e
1	-58.7	-40.1	+14	- 6	10.6	G0
2	-58.0	+29.9	- 4	- 8	10.6	F8
3	-27.0	-36.3	-11	+17	9.4	K0
4	- 1.6	+40.5	+ 2	- 3	10.6	G0
5	+25.5	+49.7	- 5	- 7	10.0	K:
6	+27.3	-28.4	+ 9	- 4	10.5	G0
7	+37.1	-36.2	-11	- 7	11.1	...
8	+55.4	+20.9	+ 7	+18	10.2	A5

No.	X	Y	μ_α	μ_δ	m	Sp
T Ser		340	M		9.1-15.5	
	$18^h23^m.9$		+06° 14'		4° + 6°	
			+ 1	- 3		
V	- 2.2	+ 1.1	- 2	+ 6	10.8	M7e
1	-36.6	+41.4	- 2	- 1	11.0	F:
2	-37.0	+ 8.7	+ 2	0	10.4	A5
3	-3.8	-55.6	0	+ 1	10.4	F0
4	+ 9.2	+27.2	0	+ 2	10.9	A2
5	+47.6	+12.3	0	- 1	10.8	A5
6	+51.6	-34.0	0	- 1	11.2	...

No.	X	Y	μ_α	μ_δ	m	Sp
SV Dra		257	M		9.1-15.0	
	$18^h31^m.1$		+49° 18'		45° +22°	
			+ 2	+ 4		
V	+10.1	+ 7.7	+ 8	+ 4	10.4	M7e
1	-45.2	-22.4	+19	-28	10.6	G5
2	-37.8	+ 3.6	- 8	- 8	10.4	K5
3	-16.6	+45.6	- 1	+13	10.7	A5
4	- 3.9	-43.0	-10	+22	10.5	G5
5	+ 4.7	+27.3	0	- 3	9.9	K0
6	+ 6.3	-15.5	+ 4	+ 9	10.2	K0
7	+21.5	+ 8.4	+ 8	- 2	11.9	...
8	+71.[illegible]	- 4.0	-13	- 4	9.9	K0

No.	X	Y	μ_α	μ_δ	m	Sp
RZ Her		329	M		9.0-15.5	
	$18^h32^m.7$		+25° 58'		23° +13°	
			+ 1	- 1		
V	-11.0	+ 6.3	- 6	-12	9.9	M5e
1	-59.3	-17.9	-14	-12	10.4	K0
2	-35.0	+18.7	+ 4	- 6	10.1	G5
3	-15.1	-38.7	+ 4	+29	10.7	K0
4	- 6.3	+30.2	+ 6	-10	10.7	F0
5	+ 7.7	+37.1	-19	+19	10.6	G:
6	+21.6	-11.1	+ 1	- 8	10.0	K0
7	+42.5	+16.8	+ 9	- 2	11.4	...
8	+43.9	-35.1	+ 9	- 8	11.6	...

No.	X	Y	μ_α	μ_δ	m	Sp
X Oph		334	M		5.9- 9.2	
	$18^h33^m.6$		+08° 45		7° + 5°	
			+ 1	- 4		
V	-12.9	- 4.9	+ 6	+23	9.1	M5e M7e
1	-60.9	+33.8	+ 4	+ 5	10.4	M2
2	-44.3	-34.7	- 4	- 3	10.0	K2
3	-11.0	-23.9	0	+ 4	10.2	A5
4	+36.9	-15.1	+ 4	-12	9.7	K0
5	-38.2	+19.7	- 3	+ 9	10.4	A0
6	+41.1	+20.2	- 1	- 1	10.0	A0

RS Dra 280 SRa 9.0-12.0
$18^h40^m.2$ +74° 14' 72° +27°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 2	+ 9		
V	+ 8.2	-18.1	- 3	-10	9.8	M5e
1	-47.0	-37.6	+ 2	+35	10.5	K0
2	-43.0	+40.5	-12	+ 6	8.8	K2
3	-15.5	+ 8.4	+11	-42	10.5	F8
4	-10.8	-18.6	- 1	+ 1	9.3	K0
5	(+ 4.4	-55.6)	(+56	+142)	10.3	K2
6	+19.6	+33.1	+ 1	+36	8.3	A2
7	+43.1	-17.3	+ 2	-27	9.3	F0
8	+53.6	- 8.5	- 3	- 8	11.0	K2

RY Lyr 326 M 9.0-15.6
$18^h41^m.3$ +34° 34' 31° +15°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 2	+ 1		
V	+13.5	+15.0	0	- 3	10.0	M6e
1	-51.4	-38.2	+ 2	+11	10.7	...
2	-45.9	+37.4	+ 1	+ 5	9.9	F0
3	-25.0	- 7.5	-10	-19	10.3	...
4	-19.0	+ 3.8	+ 6	+ 3	10.9	...
5	+33.0	+48.5	- 7	16	11.2	...
6	+31.5	-40.2	+ 2	1	9.9	K0
7	+35.6	-16.6	+ 5	+ 8	10.7	...
8	+42.2	+12.8	0	+ 8	10.4	G:

ST Sgr 395 M 7.6-15.[illegible]
(Y) $18^h55^m.9$ -12° 54' 250° - 9°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 2	- 8		
V	+ 0.5	- 2.5	- 3	+ 2	9.9	Se
1	-60.7	-62.6	-14	-13	9.6	G5
2	-48.7	+35.3	- 5	+18	11.5	A0
3	-16.4	-46.3	+10	+ 8	9.4	G5
4	- 6.7	+65.7	+ 8	-12	10.9	F
5	+ 8.5	+65.0	- 5	- 1	11.2	A
6	+32.8	-26.5	+ 4	+ 7	9.9	B6
7	+41.4	-51.6	0	- 2	10.1	B8
8	+49.8	+22.9	+ 2	- 5	11.0	A

Z Lyr 288 M 9.2-15.0
$18^h56^m.0$ +34° 49' 33° +12°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 2	+ 1		
V	- 1.4	+ 1.6	+ 3	- 6	10.5	M5e
1	-33.3	+12.4	+ 5	+10	10.7	...
2	-31.4	-29.7	- 6	- 1	10.7	F0
3	-22.0	+38.1	+ 4	+ 1	10.9	K:
4	-15.8	-24.3	- 2	-10	10.5	...
5	+18.6	-26.4	- 5	+ 3	10.9	...
6	+21.0	+13.6	-27	-19	9.6	K0
7	+23.7	-11.8	+13	+ 8	9.7	K0
8	+39.2	+28.1	+18	+ 9	10.8	G5

RT Lyr 251 M 9.1-15.2
$18^h57^m.8$ +37° 23' 36° +13°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 2	+ 1		
V	+ 3.1	- 2.5	+12	+11	10.8	M5e
1	-80.0	- 1.0	- 2	- 2	9.9	...
2	-59.3	-25.3	- 7	+ 1	10.0	F0
3	-33.3	+28.6	+ 1	-27	11.5	...
4	- 2.1	+ 8.8	+ 7	+28	10.5	...
5	+28.7	- 6.9	+ 6	+12	11.0	...
6	+38.5	-41.7	+ 3	-12	10.3	...
7	+48.4	+19.1	- 3	+ 1	10.2	...
8	+59.0	+16.4	- 6	- 2	9.8	...

R Aql 300 M 5.7-12.0
$19^h01^m.8$ +08° 05' 10° - 1°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 2	- 4		
V	+ 2.8	+ 9.1	- 2	-53	10.6	M5e M8e
1	-43.8	-49.2	- 6	0	10.1	G5
2	-38.6	+49.8	- 7	+13	10.9	A0
3	-34.3	+55.4	+11	-13	10.2	G5
4	- 3.0	-24.7	+ 2	0	9.5	K0
5	+19.2	-23.8	- 9	- 8	11.1	A0
6	+20.0	-27.0	- 3	- 1	10.6	A:
7	+38.9	+29.2	- 4	0	8.3	A0
8	+40.5	- 9.7	+16	+ 9	8.8	K0

V Lyr 374 M 8.8-15.0
$19^h05^m.2$ +29° 30' 29° + 8°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 2	- 1		
V	+11.4	- 1.5	- 5	0	11.3	M7e
1	-51.1	+10.4	-10	-15	11.5	...
2	-42.2	-22.8	+ 5	- 3	11.1	...
3	-16.6	+41.8	+ 7	+10	11.5	..
4	-12.6	-41.8	- 2	+ 8	10.9	...
5	+11.6	+38.9	+ 8	+12	11.0	K5
6	+21.8	-36.0	- 2	- 8	11.1	...
7	+39.4	+27.0	- 5	- 7	11.6	...
8	+49.7	-17.6	0	+ 4	10.7	A0

TY Lyr 332 M 10.3-13.5
$19^h05^m.8$ +27° 55' 28° + 8°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 2	- 1		
V	+ 5.2	- 5.2	+ 2	+ 4	10.2	M8e
1	-72.0	+42.7	- 3	- 3	10.1	A2
2	-62.9	-31.5	0	- 2	9.8	A0
3	-44.9	-33.3	0	- 2	10.8	A2
4	-12.7	+27.0	+ 4	+ 7	10.5	A5
5	+27.2	+40.0	+ 4	- 4	9.9	A5
6	+50.0	+ 0.5	- 4	0	10.0	F8
7	+54.4	-26.2	- 2	+ 6	10.3	A0
8	+60.8	-19.3	+ 2	- 2	10.6	A0

RW Sgr 190 M 9.0-11.5
$19^h08^m.1$ -19° 02' 346° -15°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 2	- 8		
V	-23.6	- 9.3	- 8	+ 6	10.2	M4
1	-44.2	- 8.1	+ 1	- 7	8.8	A0
2	-30.5	+22.4	+ 3	+ 1	10.5	K:
3	-21.5	-22.1	- 4	+ 6	10.6	A0
4	+10.6	-29.3	+ 3	+ 1	8.5	K0
5	+32.1	+15.5	+28	- 4	10.7	G0
6	+53.5	+21.6	-31	+ 3	9.9	K0

RW Sgr 190 M 9.0-11.5
(Y) $19^h08^m.1$ -19° 02' 346° -15°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 3	- 9		
V	+ 3.4	+ 1.5	-19	+ 5	11.7	M4
1	-64.4	+62.1	- 5	+ 1	11.1	K:
2	-63.0	-52.9	+14	+ 5	11.0	fg
3	-39.0	-38.4	+ 2	+ 1	10.7	K2
4	-37.5	+25.9	-11	- 7	12.8	...
5	+14.2	-27.3	- 7	+16	10.9	K0
6	+61.5	+55.4	-10	+15	10.9	G:
7	+63.2	-53.0	-10	-22	11.2	G0
8	+64.9	+28.2	+26	- 9	10.7	G0

RX Sgr 334 M 9.3-14.1
$19^h08^m.7$ -18° 59' 346° -15°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 2	- 8		
V	+ 2.5	- 0.8	-15	+24	10.5	M5e
1	-44.2	- 8.1	+ 1	- 7	8.8	A0
2	-30.5	+22.4	+ 3	+ 1	10.5	K:
3	-21.5	-22.1	- 4	+ 6	10.6	A0
4	+10.6	-29.3	+ 3	+ 1	8.5	K0
5	+32.1	+15.5	+28	- 4	10.7	G0
6	+53.5	+21.6	-31	+ 3	9.9	K0

RX Sgr 334 M 9.3-14.1
(Y) $19^h08^m.7$ -18° 59' 346° -15°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 3	- 9		
V	+32.2	+10.6	- 5	+15	11.7	M5e
1	-64.4	+62.1	- 5	+ 1	11.1	K:
2	-63.0	-52.9	+14	+ 5	11.0	fg
3	-39.0	-28.4	+ 2	+ 1	10.7	K2
4	-37.5	+25.9	-11	- 7	12.8	...
5	+14.2	-27.3	- 7	+16	10.9	K0
6	+61.5	+55.4	-10	+15	10.5	G:
7	+63.2	-53.0	-10	-22	11.2	G0
8	+64.9	+28.2	+26	- 9	10.7	G0

S Lyr 438 M 10.4-15.5

$19^h 09^m.1$ +25° 50' 26° + 6°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 2	- 1		
V	+ 3.6	- 8.0	+ 3	- 7	11.0	S
1	-62.2	+13.0	-59	-12	11.0	...
2	-59.7	- 3.1	+31	+ 7	11.6	...
3	-28.2	+39.3	+35	+15	11.0	...
4	-18.3	-52.6	- 7	-11	10.9	A0
5	+25.8	-48.4	- 9	+ 4	11.6	A0
6	+34.5	+15.2	+11	-10	10.8	...
7	+49.7	+39.0	+12	+ 6	10.4	K5
8	+58.3	- 2.5	-14	0	10.7	A:

RS Lyr 305 M 9.2-15.6

$19^h 09^m.3$ +33° 15' 33° + 9°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 2	0		
V	+ 4.2	+ 2.2	- 3	- 2	11.3	M5e
1	-62.3	+36.8	- 4	+ 3	10.2	A5
2	-53.8	-25.8	+ 5	+ 3	9.8	A0
3	-31.1	-26.1	0	+ 3	10.9	A:
4	-18.3	+26.2	- 1	-10	10.1	K2
5	+13.3	-26.4	- 1	- 4	11.0	...
6	+44.9	-22.6	- 3	- 3	11.2	...
7	+49.0	+14.5	+ 3	- 3	10.2	K0
8	+58.3	+23.4	+ 1	+10	10.3	K0

U Dra 317 M 9.1-14.6

$19^h 09^m.9$ +67° 07' 65° +23°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 4	+ 9		
V	+ 8.7	+ 4.0	-12	-14	10.5	M6e M8e
1	-50.0	+ 3.3	+15	+50	10.6	K0
2	-48.0	+19.3	-10	-23	10.9	F5
3	-24.8	+27.6	- 5	-31	9.6	F5
4	-25.8	-52.8	0	+ 4	10.0	F8
5	+23.7	+46.5	+ 4	+13	9.7	K0
6	+26.0	-15.9	- 2	-15	10.3	G5
7	+45.2	-44.9	+ 2	+11	10.0	K0
8	+53.7	+16.9	- 3	- 8	12.0	...

W Aql 490 M 7.8-14.2

$19^h 10^m.0$ -07° 13' 357° -10°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 2	- 5		
V	- 8.8	- 8.5	+17	+ 5	10.2	S4.9.e
1	-46.7	+52.4	+ 1	+ 6	9.8	K:
2	-41.6	-34.4	- 4	- 4	9.5	A0
3	-14.4	-28.1	+ 3	- 2	10.6	A:
4	-16.6	-25.5	+ 1	+ 6	10.9	K:
5	+31.8	+16.8	- 4	+12	9.8	A0
6	+54.3	+18.8	+ 3	-18	10.8	K0

T Sgr 392 M 7.7-12.9

$19^h 10^m.5$ -17° 09' 348° -14°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 3	- 8		
V	- 2.8	-15.6	- 1	- 5	10.4	S6e
1	-56.6	-36.0	+ 6	+ 3	8.8	A0
2	-36.0	-21.2	- 1	-17	10.1	K:
3	-33.4	+32.1	- 8	+16	11.2	...
4	-14.5	+45.0	+ 3	- 2	8.4	K2
5	+32.1	+46.3	+ 5	-14	10.4	...
6	+32.3	-42.3	-10	+ 6	9.6	K0
7	+32.6	-20.8	+ 4	0	10.3	...
8	+43.5	- 3.1	+ 1	+ 8	10.4	K:

R Sgr 269 M 6.7-12.8

$19^h 10^m.8$ -19° 29' 346° -16°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 3	- 9		
V	+10.9	+ 1.2	+ 9	- 2	10.5	M4e M6e
1	-41.0	+21.1	0	-19	10.6	g5
2	-37.8	-20.6	0	+ 9	9.7	F5
3	-37.4	- 8.4	0	+10	10.5	g5
4	+22.0	+43.8	+ 6	+13	9.6	K0
5	+39.9	+19.1	- 6	+ 6	8.7	K2
6	+54.3	-54.9	0	-19	8.9	K0

R Sgr 269 M 6.7-12.8

(Y) $19^h 10^m.8$ -19° 29' 346° -16°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 3	- 9		
V	+11.9	+ 1.4	+ 7	- 1	10.2	M4e M6e
1	-45.2	+23.2	- 1	-16	10.6	g5
2	-41.6	-22.6	- 1	+ 6	9.7	F5
3	-41.2	- 9.3	+ 3	+10	10.5	g5
4	+24.2	+48.3	+11	+11	9.6	K0
5	+44.0	+21.0	-10	+ 6	8.7	K2
6	+59.8	-60.4	- 1	-16	8.9	K0

S Sgr 231 M 9.5-16.0

$19^h 13^m.6$ -19° 12' 346° -16°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 3	-11		
V	+11.0	- 3.3	0	-15	11.1	M4e
1	-54.2	+ 1.3	+18	-35	11.2	...
2	-49.0	-23.8	- 3	-29	10.4	K2
3	-32.3	- 9.9	-20	+50	10.2	K
4	-29.4	+29.0	+ 5	+13	10.6	F8
5	+31.0	- 5.9	+16	+16	11.1	G:
6	+41.5	+20.4	- 1	+18	10.8	K0
7	+45.4	+38.3	-22	+ 4	10.0	G0
8	+47.0	-48.3	+ 8	-37	10.5	K5

Z Sgr 451 M 8.4-16.0

$19^h 13^m.8$ -21° 07' 345° -17°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 2	- 7		
V	+11.8	- 0.7	- 2	+20	11.0	M4e M5e
1	-60.8	-38.7	+ 9	-11	10.2	A2
2	-49.6	+42.1	0	+16	11.3	...
3	-44.2	-45.0	- 4	-28	10.8	K
4	-20.4	+45.9	- 5	+23	11.0	A2
5	+30.3	+14.0	- 5	+23	11.6	...
6	+31.6	-35.7	+ 2	+17	11.6	F8:
7	+50.4	+25.1	+10	-61	9.7	K0
8	+62.7	- 6.7	- 7	+22	10.7	K5

U Lyr 457 M 8.3-13.5

$19^h 16^m.7$ +37° 41' 37° +10°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 2	+ 1		
V	+14.7	+ 4.8	- 1	+ 3	10.4	N0e C4,9 ?
1	-57.5	+36.5	0	- 6	11.5	F2
2	-53.9	-39.1	-10	-12	11.3	K5
3	-16.0	+41.8	- 1	- 3	10.7	K0
4	-14.8	-12.3	+11	+22	10.4	F0
5	+24.6	-52.1	+13	- 2	11.2	A5
6	+28.5	+25.8	0	- 9	11.0	A2
7	+37.9	-33.9	-14	- 8	10.6	K0
8	+51.2	+33.4	+ 1	+18	11.7	...

RT Aql 327 M 7.8-14.5

$19^h 33^m.3$ +11° 30' 16° - 6°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 4	- 4		
V	- 6.2	+15.0	+12	- 1	9.7	M6e M8e
1	-50.2	+27.0	-11	-16	10.4	K2
2	-48.5	-30.7	+12	+ 8	10.3	A0
3	-35.5	+31.3	-18	- 9	9.0	A5
4	-23.7	-24.2	+17	+17	10.1	K2
5	+19.9	-25.4	-50	-79	9.5	G5
6	+34.4	-41.4	+21	+54	9.6	F5
7	+51.6	+38.6	+16	+12	9.9	A2
8	+52.0	+24.8	+13	+13	10.6	A0

R Cyg 426 M 6.5-14.2

$19^h 34^m.1$ +49° 59' 50° +13°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 4	+ 3		
V	+ 4.2	- 8.1	- 3	+ 6	10.5	S3.9e S6.8e
1	-59.3	+17.2	+ 5	+12	11.5	G:
2	-57.2	-46.2	- 6	-16	9.7	K0
3	-28.9	-35.0	+ 2	- 4	10.3	A0
4	-14.1	+30.8	- 2	+ 8	11.0	...
5	+14.9	+29.3	- 5	-12	10.3	K0
6	+42.6	-27.6	- 3	+ 5	9.6	K0
7	+47.4	+39.0	+ 2	- 7	10.0	K0
8	+54.6	- 7.5	+ 7	+14	9.1	K0

BG Cyg 292 M 9.1-12.4

$19^h34.9^m$ +28° 17' 31° + 2°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 3	- 1		
V	+ 3.5	- 1.7	+ 4	- 1	10.2	M7e
1	-47.0	+27.5	0	+ 5	10.7	F0
2	-29.5	-22.5	0	- 5	10.8	K:
3	+35.1	-31.9	0	+ 5	9.9	K:
4	+41.4	+26.9	0	- 5	10.5	...

RV Aql 219 M 8.1-14.8

$19^h36.0^m$ +09° 42' 15° - 8°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 4	- 4		
V	- 3.1	-11.7	0	- 1	10.4	M3e
1	-52.4	+45.6	- 7	+ 4	10.3	K5
2	-34.3	-35.4	- 4	0	10.4	A0
3	- 7.9	+41.1	+22	+ 5	10.1	G5:
4	- 6.6	-44.6	-11	- 9	10.1	A0
5	+13.9	-20.1	+ 7	+12	11.3	F2
6	+17.1	+ 7.5	-14	- 1	9.0	K0
7	+26.4	+33.9	- 1	- 7	8.9	A0:
8	+44.0	-28.0	+ 8	- 4	9.7	K0

RT Cyg 190 M 6.4-12.7

$19^h40.8^m$ +48° 32' 49° +11°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 5	+ 3		
V	- 5.6	+ 2.5	- 5	+20	10.2	M2e M4e
1	-66.9	+ 8.2	- 4	-11	10.6	A5
2	-33.4	-39.9	0	+ 9	9.3	F8
3	-10.6	+30.6	+ 2	+ 2	9.9	K0
4	- 7.1	+11.7	+ 2	0	9.3	A2
5	+ 0.9	+ 6.7	+ 5	- 2	10.3	A0
6	+33.9	-12.6	+ 6	-27	10.8	G0
7	+39.5	-14.1	- 6	+19	10.9	G0
8	+43.7	+ 9.4	- 5	+11	9.5	K0

TU Cyg 219 M 8.7-14.9

$19^h43.4^m$ +48° 50' 50° +11°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 3	+ 2		
V	+10.0	+ 2.7	- 7	- 6	10.8	M3e M4e
1	-56.9	-42.9	+ 3	- 6	10.6	K:
2	-47.8	-11.8	- 5	- 3	11.5	...
3	-22.7	+21.8	+ 1	+10	9.9	A0:
4	-18.6	+34.8	+ 1	- 1	11.4	...
5	+ 6.5	+13.2	- 8	- 3	10.4	A0
6	+ 8.6	-14.3	- 2	+ 2	10.0	K0
7	+64.8	+33.6	+ 6	- 6	10.8	...
8	+75.9	-34.3	+ 4	+ 7	10.0	K0:

X Aql 348 M 8.3-15.2

$19^h46.5^m$ +04° 13' 12° -13°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 5	- 6		
V	+ 1.1	- 3.7	- 4	- 3	10.7	M6e
1	-61.7	+10.1	- 3	0	10.1	G0
2	-26.2	-33.9	+ 3	0	10.3	K
3	-18.2	+35.2	- 1	0	10.4	K5
4	+30.2	+42.7	+ 3	0	10.7	K
5	+31.8	-42.9	- 8	- 4	10.4	K:
6	+44.1	-11.2	+ 5	+ 3	10.1	K0

X Cyg 407 M 3.3-14.2

$19^h46.7^m$ +32° 40' 36° + 2°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 3	0		
V	-11.6	-17.0	-24	-35	10.6	M6 M10 S7.1e: S10.1e:
1	-58.5	-15.3	+ 1	- 4	10.0	A5
2	-49.1	+22.7	- 8	- 7	10.1	A2
3	-26.8	+21.6	+ 5	+ 5	9.3	A0
4	- 3.6	-45.2	+ 1	+ 6	11.3	A2
5	+ 6.3	+36.2	+ 4	+ 7	10.7	A2
6	+22.4	-23.8	- 6	- 7	10.7	G:
7	+48.3	+45.4	- 1	- 5	11.3	A2
8	+61.0	-41.6	+ 4	+ 6	10.5	A5

RR Sgr 334 M 5.6-14.0

$19^h49.7^m$ -29° 27' 339° -27°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 5	-11		
V	+ 4.3	-13.3	-20	0	11.1	M5e
1	-53.7	-17.6	+10	+ 4	11.3	...
2	-29.8	-49.4	-10	+ 1	9.5	K0:
3	-21.5	+23.8	- 1	+ 8	10.0	K:
4	-16.3	+ 6.4	+ 1	-13	10.9	G:
5	+11.8	-32.0	- 6	+ 7	11.1	...
6	+16.1	+42.8	-11	- 2	11.3	...
7	+40.2	+39.1	- 1	+ 7	11.4	...
8	+53.2	-13.1	+18	-13	10.7	G:

RR Aql 394 M 7.6-14.5

$19^h52.4^m$ -02° 09' 7° -17°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 5	- 7		
V	- 8.7	- 3.4	-21	-38	9.9	M6e M7e
1	-55.6	+54.3	+ 8	- 4	9.8	K0
2	-35.8	-47.7	+ 2	- 1	10.3	G:
3	-22.8	-22.3	- 6	+ 2	8.7	A5
4	- 4.9	+31.5	- 4	- 4	10.3	...
5	- 1.9	-26.7	0	+ 7	9.3	K5
6	+28.1	+12.6	- 2	+ 7	10.4	...
7	+33.3	+17.1	- 3	+ 1	10.5	...
8	+59.6	-18.8	+ 5	- 8	10.2	K0

RS Aql 410 M 8.7-15.4

$19^h53.7^m$ -08° 09' 1° -20°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 4	- 7		
V	+ 9.9	- 5.3	+ 2	+ 3	10.9	M7e
1	-62.0	-12.8	- 2	- 6	10.9	...
2	-32.1	+46.4	-10	-22	11.5	...
3	-10.9	+28.5	+ 9	+ 3	11.1	...
4	- 6.8	-45.4	+10	+25	11.7	...
5	+12.7	+45.3	- 5	- 4	10.3	A:
6	+13.2	-34.3	+11	+ 8	11.3	...
7	+36.9	-30.4	-13	-27	11.0	G:
8	+49.0	+ 5.7	+ 7	+23	11.3	A:

Z Cyg 264 M 7.6-14.7

$19^h58.6^m$ +49° [illegible] 52° +10°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 5	+ 3		
V	+11.6	+15.5	+16	- 5	10.2	M5e
1	-58.1	+49.8	-11	- 6	11.2	K:
2	-48.0	-46.8	+ 4	+ 4	10.5	K0
3	-44.8	+25.5	+ 4	+ 5	10.5	...
4	-31.5	-16.7	+ 3	- 3	9.8	G5
5	+11.0	-12.6	+ 7	- 3	10.2	K0
6	+53.0	+10.0	+ 7	+ 1	10.0	K0
7	+53.6	+30.3	+ 1	0	11.6	A2
8	+64.8	-39.5	-15	+ 1	10.3	...

SY Aql 356 M 8.3-15.4

$20^h02.4^m$ +12° 40' 21° -12°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 6	- 5		
V	-11.0	+23.4	-31	- 4	10.8	M5e
1	-51.9	-23.0	-21	+ 8	9.8	K0
2	-44.8	+26.3	-46	+ 9	9.7	K0
3	-38.4	+44.3	+65	-15	9.8	K0
4	-20.5	-30.2	+ 3	- 2	10.6	F5
5	+22.5	-17.3	+11	+ 2	10.6	G:
6	+23.6	+ 5.5	-15	- 1	10.3	K0
7	+53.8	-32.4	+ 8	- 9	9.9	G5
8	+55.7	+26.8	- 4	+ 8	11.2	...

S Cyg 323 M 9.3-16.0

$20^h03.4^m$ +57° 42' 59° +13°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 4	+ 3		
V	+ 4.4	+ 6.7	+ 1	0	10.8	S5.2e
1	-57.8	-24.7	0	- 5	11.4	A:
2	-42.4	+39.1	- 6	- 6	9.9	A0
3	-32.1	- 4.8	+ 7	+ 1	9.8	K0
4	-16.1	+15.7	- 1	+10	10.8	K0
5	+18.5	+24.3	+ 9	+ 3	10.0	K0
6	+41.2	-28.0	+ 3	+ 6	11.6	A0
7	+42.4	-51.2	-10	- 2	10.2	F0
8	+46.3	+29.5	- 2	- 6	9.7	K2

R Cap 345 M 9.4-14.7
$20^h 05.^m7$ -14° 34' 357° -25°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 5	- 8		
V	- 1.7	+ 4.4	+ 5	+ 5	10.3	Ne
1	-68.3	+49.3	- 8	-18	11.3	K2
2	-32.5	- 4.8	+ 4	- 7	11.4	K5:
3	-30.8	+14.0	+ 6	+ 8	11.4	K5:
4	-13.7	-46.4	- 2	+16	11.7	...
5	+ 8.7	-19.5	+ 6	-21	11.3	K0
6	+38.6	+ 6.1	- 7	- 1	11.9	...
7	+43.6	+25.8	+ 9	+10	10.6	F0
8	+54.4	-24.5	- 7	+12	10.8	K0

S Aql 146 SRa 8.9-12.4
$20^h 07.^m0$ +15° 19' 24° -11°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 6	- 4		
V	+ 6.9	+ 2.2	0	+21	9.4	M3e
1	-36.8	+15.8	- 3	-12	10.3	..
2	-36.0	-24.3	- 2	-10	10.2	G5
3	- 1.9	+10.5	+ 5	+22	10.6	...
4	+ 7.5	- 2.1	+ 8	+23	9.4	G5
5	+27.6	-25.9	- 6	-12	10.5	[illegible]0:
6	+39.6	+27.0	- 2	-10	10.5	...

RU Aql 274 M 8.7-14.8
$20^h 08.^m1$ +12° 42' 22° -13°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 5	- 3		
V	- 3.2	+ 8.0	+ 3	+ 9	10.0	M5e
1	-57.6	+34.3	0	+ 3	10.0	...
2	-34.4	- 6.2	0	- 1	10.3	K:
3	-29.8	+21.2	+ 2	- 3	10.0	K:
4	-19.2	-28.3	- 2	+ 2	10.5	...
5	+12.7	-32.5	+ 3	+ 1	10.6	G5
6	+21.8	+46.0	+ 6	+ 6	9.8	A0
7	+51.3	-44.9	- 1	- 1	9.6	B8
8	+55.3	+10.5	- 8	- 5	10.9	A:

Z Aql 129 M 8.2-14.8
$20^h 09.^m9$ -06° 27' 5° -23°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 7	- 9		
V	-20.4	+10.0	+ 3	+10	10.4	M3e
1	-59.9	-36.1	+ 8	+21	11.1	F8
2	-37.9	+ 3.3	+11	+31	10.5	K2:
3	-31.2	-19.7	- 8	-24	10.8	G0
4	-37.3	+43.9	-11	-28	10.0	F8
5	-21.7	-33.4	- 6	- 1	10.9	...
6	38.4	+28.8	- 2	- 2	11.0	G5
7	+37.9	-17.6	+ 5	+ 5	10.8	...
8	+58.2	+30.9	+ 2	- 2	10.4	K0

R Del 285 M 7.6-13.7
$20^h 10.^m1$ +06° 47' 19° -15°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 5	- 4		
V	+ 0.1	+10.0	-11	- 4	10.3	M5e M6e
1	-50.1	+46.4	+10	+ 6	11.3	g
2	-35.6	-34.2	+ 8	+ 1	10.8	G0
3	-24.2	+10.6	+ 6	+ 1	10.3	K2
4	-22.9	-15.7	-24	- 8	10.9	G0
5	+18.9	+31.3	- 7	- 8	11.5	G5
6	+33.7	-19.8	-12	- 2	10.6	K:
7	+34.4	-45.9	+29	+ 9	10.7	K2
8	+45.8	+27.3	-10	+ 1	11.8	G0:

R Del 285 M 7.6-13.7
([illegible]) $20^h 10.^m1$ +[illegible]° 47' 19° -15°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 5	- 4		
V	+28.6	+11.2	- 4	- 6	10.9	M5e M6e
1	-72.6	+36.2	+ 4	+ 3	11.8	G:
2	-71.2	-52.2	+23	-26	11.5	G:
3	-43.7	+36.9	- 8	+ 7	10.4	K0
4	-40.0	-26.7	- 8	+ 8	11.8	G0
5	-26.7	+51.9	+ 1	+ 2	11.3	g
6	-10.9	-36.9	-11	+ 6	10.8	G0
7	+ 1.8	+12.4	- 3	+ 6	10.3	K2
8	+ 3.2	-16.5	-30	- 6	10.9	G0
9	+49.2	+35.2	- 4	- 9	11.5	G5
10	+65.5	-21.2	- 2	- 3	10.6	K:
11	+66.4	-49.9	+27	+14	10.7	K2
12	+78.9	+30.8	+11	- 7	11.8	G0

SX Cyg 412 M 8.2-15.2
$20^h 11.^m6$ +30° 46' 38° - 3°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 4	- 1		
V	+14.4	- 5.0	-11	-16	10.0	M7e
1	-47.9	+19.5	- 8	- 4	10.3	F0
2	-39.6	+22.4	+ 4	0	10.2	K2:
3	-37.5	-36.3	+ 7	+ 2	10.1	A2
4	-30.0	-22.9	- 4	+ 2	9.8	A5
5	+25.4	+43.2	+ 1	+ 1	9.9	K2
6	+28.1	-16.9	- 2	+ 1	10.4	A0
7	+42.2	+15.4	+ 3	+ 3	11.2	A0
8	+59.3	-24.4	- 1	- 6	9.6	A2

SZ Cep 327 M 9.3-14.6
$20^h 13.^m0$ +76° 53' 77° +22°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 5	+ 6		
V	+ 1.5	-15.1	+ 9	-23	13.1	Se
1	-47.0	+39.4	+ 4	+11	12.0	...
2	-28.9	-30.0	- 3	- 1	11.5	G:
3	-21.3	+31.9	- 4	- 4	12.6	...
4	-13.7	-25.7	+ 4	- 6	12.5	...
5	+ 8.3	-37.6	- 1	-10	11.7	...
6	+27.8	+28.3	+ 8	+14	12.0	...
7	+34.8	-28.7	0	+16	11.6	K:
8	+40.1	+22.4	- 8	-20	12.0	...

WX Cyg 411 M 8.8-13.2
$20^h 14.^m8$ +37° 08' 43° 0

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 4	0		
V	+ 5.7	- 1.2	0	- 8	11.4	N3e C8e
1	-50.3	-11.5	- 2	- 1	11.2	...
[illegible]	-44.8	+32.8	- 9	- 4	11.2	...
3	-30.4	-31.5	- 1	- 3	11.5	...
4	- 6.4	+27.8	+12	+ 8	11.5	K0
5	+ 4.2	+23.1	- 3	- 8	11.1	B2
6	+25.2	-24.0	- 2	+ 4	11.6	A2
7	+46.8	+22.6	+ 1	+ 3	10.8	G5:
8	+55.6	-39.3	+ 5	0	11.1	A0

U Cyg 465 M 6.7-11.4
$20^h 16.^m5$ +47° 35' 52° + 6°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 5	+ 1		
V	- 2.1	+ 1.1	+ 7	+ 7	9.6	Npe $C7_2e$ C9
1	-64.7	+ 1.0	+17	+18	10.3	A2
2	- 9.1	+27.7	-17	-18	10.6	K:
3	+ 6.4	-49.9	+ 9	+10	10.0	F2
4	+ 8.6	+ 0.1	- 4	- 3	10.0	K0
5	+ 9.2	+27.5	+ [illegible]	+ 3	10.5	A2
6	+49.6	- 6.5	- 9	-10	10.4	F5

U Mic 334 M 7.0-14.4
(Y) $20^h 22.^m6$ -40° 45' 328° -37°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 6	-10		
V	- 0.1	+ 1.7	- 1	- 6	9.8	M6e
1	-65.8	+19.9	0	- 1	10.6	gk
2	-34.9	-32.5	+ 1	- 5	11.6	...
3	-34.1	+41.6	- 9	+ 1	10.7	...
4	-11.1	-31.7	+ 7	+ 5	11.5	f
5	+ 9.8	+56.0	- 6	+16	10.6	k
6	+17.9	-44.1	- 5	+ 2	11.3	...
7	+53.1	-29.8	- 4	- 2	12.8	...
8	+65.2	+20.6	+15	-16	11.4	...

RU Cap 347 M 9.2-15.2
$20^h 26.^m7$ -22° 02' 351° -33°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 7	-10		
V	+13.8	+12.8	+ 2	- 5	9.8	Me
1	-49.8	+50.1	+19	- 3	11.9	...
2	-37.3	+ 3.5	- 7	- 3	11.7	G:
3	-33.2	-27.2	- 9	+ 2	10.8	K:
4	-17.3	-46.5	- 3	+ 4	10.0	F5
5	+ 7.3	- 1.8	+29	-15	10.2	F8
6	+26.7	+16.5	- 9	- 5	10.7	K
7	+45.6	+42.9	- 3	+11	10.5	G0
8	+56.0	-37.5	-18	+ 9	11.6	G

Z Del 304 M 8.3-15.3

$20^h28.^m1$ +17° 07' 29° -14°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 5	- 3		
V	+ 8.9	- 3.3	- 5	- 6	10.4	S5,2.5e S7,2e:
1	-55.9	+15.1	+ 2	+ 2	10.5	K0
2	-28.8	+36.2	- 1	0	10.7	...
3	-26.2	-25.0	0	+ 1	9.8	K0
4	-13.9	-48.6	- 1	0	10.4	A2
5	+21.8	-42.4	- 1	- 2	9.2	A2
6	+33.2	- 2.2	+ 2	- 4	9.9	K5
7	+34.6	+39.3	- 9	- 6	9.9	K2
8	+35.2	+27.6	+ 9	+ 8	10.5	K0:

ST Cyg 336 M 9.4-14.5

$20^h29.^m9$ +54° 37' 59° + 8°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 5	+ 2		
V	+ 7.3	- 0.6	+ 1	- 6	10.4	M6e
1	-58.0	+38.8	- 3	- 6	10.0	K0:
2	-37.7	-30.3	- 2	- 1	10.6	K0
3	-17.2	+31.0	+ 2	+ 2	9.7	A2
4	-16.8	-25.7	+ 3	+ 5	9.9	A5
5	+24.3	+30.4	- 2	+ 1	10.4	K2
6	+31.7	-34.2	+ 5	- 1	10.5	K2
7	+34.6	-35.0	- 6	- 3	10.6	K0
8	+39.1	+25.0	+ 3	+ 3	9.9	A0

RU Vul 156 SRa 8.8-12.2

$20^h3^m.5$ +22° 54' 34° -12°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 6	- 2		
V	+10.8	- 0.4	0	+ 8	10.2	M3e
1	-61.2	+49.[illegible]	+ 9	- 1	10.0	A0
2	-49.6	-15.2	-26	+ 5	11.9	G:
3	-15.5	+14.9	- 4	- 4	11.0	A0
4	-15.7	-49.6	+21	0	10.8	F8
5	+12.2	-45.3	+ 3	- 1	10.2	G:
6	+20.7	+43.4	- 8	+ 4	11.4	K:
7	+49.7	-14.7	+ 2	- 4	11.6	A:
8	+59.4	+16.8	+ 3	+ 1	11.1	K:

Y Del 470 M 8.8-14.7

$20^h36.^m9$ +11° 31' 25° -19°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 6	- 4		
V	+ 0.3	- 2.9	- 8	+ 6	11.5	M8e
1	-44.5	-51.2	-19	+11	11.4	...
2	-33.2	+47.4	+14	+15	10.7	A:
3	-22.6	- 8.4	+16	-18	10.1	G0
4	- 8.6	+ 9.0	-11	- 8	10.0	K5:
5	+ 2.7	+ 5.5	- 5	- 2	10.0	K5:
6	+32.2	-12.4	+ 7	+ 4	10.9	K0:
7	+36.9	-32.8	- 4	+ 3	10.7	K0:
8	+37.1	+42.8	+ 2	- 5	11.6	...

V Cyg 421 M 7.7-13.9

$20^h38.^m1$ +47° 47' 54° + 3°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 7	+ 2		
V	- 4.7	- 9.7	- 4	- 6	9.8	Npe C74e
1	-42.0	-15.4	- 4	+ 6	9.6	B0
2	-16.4	-35.3	+ 2	0	10.0	...
3	-15.3	+ 6.1	+ 3	+ 5	9.5	A:
4	-14.7	+46.9	0	-11	9.8	A:
5	+38.3	+45.9	- 2	+ 6	9.7	A0:
6	+50.2	-48.2	+ 2	- 6	9.0	F8

S Del 277 M 8.3-12.3

$20^h38.^m5$ +16° 44' 29° -16°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 6	- 3		
V	+22.6	+ 9.6	+11	+11	10.4	M6e
1	-39.8	+11.7	-10	+ 1	9.7	K0
2	-27.8	+21.2	+14	+11	10.0	K0
3	-26.8	-24.4	- 7	- 8	10.3	...
4	-17.3	-38.0	+ 3	- 4	9.6	A0
5	+12.9	+36.1	+ 8	+ 7	9.6	...
6	+21.6	-44.5	+ 4	+12	9.9	K5
7	+32.3	+30.4	- 8	-13	9.9	F2:
8	+44.9	+ 7.5	- 4	- 5	10.8	K0

T Del 332 M 8.5-15.2

$20^h40.^m7$ +16° 02' 30° -17°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 6	- 3		
V	+ 1.5	- 2.3	- 5	+11	9.9	M3e M6e
1	-45.9	-13.0	- 3	- 1	9.6	A:
2	-14.7	- 1.8	+16	+ 6	9.8	K0
3	- 5.4	-24.6	-12	- 6	10.8	...
4	+ 9.5	- 1.8	+ 3	+ 4	10.9	G5
5	+22.7	+36.3	- 8	- 4	9.0	A0
6	+33.8	+ 4.9	+ 5	+ 1	10.0	F:

W Aqr 381 M 8.7-14.9

$20^h41.^m2$ -04° 27' 11° -29°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 6	- 6		
V	+ 0.3	+ 5.0	- 3	-12	11.3	M7e
1	-41.5	- 7.1	+ 5	- 3	10.5	G0
2	-28.1	+38.8	- 1	+ 5	10.9	F0
3	-14.8	+ 4.1	+ 4	- 3	11.3	K0
4	- 1.7	-24.6	- 8	+ 1	9.8	F0
5	+ 8.5	-16.2	- 4	+ 8	10.2	F2
6	+12.6	-25.1	+ 7	- 6	11.9	...
7	+21.8	+ 8.7	-11	+ 2	10.2	K0
8	+43.2	+21.4	- 8	- 4	11.0	F0

V Aqr 244 SRb 7.4-10.2

$20^h41.^m8$ +02° 04' 17° -26°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 6	- 5		
V	+ 9.3	+ 3.1	- 6	+13	11.0	M6e
1	-31.6	-54.5	+ 8	- 2	11.1	K:
2	-29.3	- 8.2	+ 1	+ 2	10.7	K:
3	-27.8	+25.4	- 9	0	11.7	...
4	+25.1	-35.9	- 9	0	9.3	K0
5	+29.6	+36.2	+ 6	+11	11.4	K:
6	+34.0	+37.0	+ 2	-11	10.7	K:

V Del 534 M 8.1-15.5

$20^h43.^m2$ +18° 58' 32° -16°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 5	- 2		
V	+ 8.1	- 5.8	+ 8	+ 4	10.7	M4e M5e
1	-64.4	+28.9	-12	- 1	11.0	F5
2	-57.9	- 7.4	+14	+ 6	11.1	A0
3	-19.5	-19.4	- 6	- 4	9.8	F2
4	- 1.3	+36.4	+ 4	- 1	10.7	K:
5	+10.9	+11.6	+ 8	+ 3	11.5	...
6	+37.6	-42.1	+ 1	0	11.2	K0:
7	+46.8	-33.4	-10	- 2	10.6	F0
8	+47.6	+25.3	0	0	11.1	K0:

T Aqr 202 M 7.2-14.2

$20^h44.^m7$ -05° 31' 10° -30°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 7	- 7		
V	+ 8.9	- 2.7	-22	- 2	10.6	M2e M5e
1	-62.2	+11.0	+ 8	+13	10.8	K0
2	-33.2	-27.8	- 7	- 1	11.4	...
3	-25.8	+30.2	0	- 1	11.4	...
4	-14.6	+48.1	- 1	-11	10.0	K0
5	+12.3	-33.3	- 8	- 6	11.5	A0
6	31.0	-2[illegible].0	-20	-15	9.8	K5
7	+39.6	-17.9	+35	+22	10.6	F8
8	+52.8	+ 6.7	- 7	- 1	11.8	...

RZ Cyg 276 SRa 9.8-14.1

$20^h48.^m5$ +46° 59' 55° + 1°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 5	+ 1		
V	-13.0	+ 5.2	+ 4	- 6	11.4	M7
1	-57.3	-24.4	+ 7	+ 8	11.6	A:
2	-47.4	+16.1	- 3	+ 1	11.5	...
3	-27.4	-27.9	+ 2	+ 1	11.2	...
4	-20.0	+45.2	- 5	- 9	11.3	...
5	-21.3	+ 8.4	- 1	+ 8	11.0	...
6	+23.5	-19.3	- 6	- 5	11.5	...
7	+48.3	-37.1	- 2	- 3	11.5	...
8	+59.0	+39.0	+ 9	+ 1	11.0	...

RX Vul 457 M 11-15
$20^h48.6^m$ +23° 00' 36° -14°

No.	X	Y	μ_α	μ_δ	m	Sp
			+6	-2		
V	-1.4	+5.6	-7	-11	10.9	M9e
1	-38.4	+46.2	-3	-2	11.6	...
2	-36.7	-38.8	+8	+1	11.3	...
3	-20.4	-8.2	-3	+2	10.3	K0
4	-18.3	+12.4	-1	-1	10.9	G5:
5	+21.0	-9.6	+4	+1	10.8	G5
6	+24.1	+2.9	-3	+6	10.8	K0
7	+35.1	+43.2	+8	-4	11.4	...
8	+33.6	-48.1	-9	-3	12.1	...

S Ind 400 M 7.9-17.0
(Y) $20^h49.0^m$ -54° 42' 310° -41°

No.	X	Y	μ_α	μ_δ	m	Sp
			+9	-12		
V	+48.8	+20.7	-6	+8	9.9	M6e
1	-70.2	-48.0	+27	+8	12.2	...
2	-65.9	+21.2	+8	+21	11.2	...
3	-37.6	+21.2	-7	-35	10.6	fg
4	-24.4	-0.1	+3	+13	12.0	...
5	-17.2	-61.1	-32	-26	10.6	F8
6	-13.6	+65.8	+3	+20	10.4	G5
7	+8.8	-41.8	+1	+21	10.8	g::
8	+27.6	-5.9	-13	+18	10.4	...
9	+30.3	+32.6	-40	+12	11.2	...
10	+49.5	+54.6	+39	-32	10.5	g:
11	+51.9	+28.7	-3	+15	11.7	...
12	+60.8	-67.3	+16	-34	11.1	gk

X Del 281 M 8.2-14.6
$20^h50.3^m$ +17° 16' 32° -18°

No.	X	Y	μ_α	μ_δ	m	Sp
			+9	-5		
V	-7.9	-9.7	+8	+5	10.0	M4e
1	-14.2	-45.0	+1	+8	10.7	G0
2	-17.5	-17.0	-3	0	9.9	K2
3	-10.4	+28.6	+2	+2	9.1	F0
4	-3.4	+49.1	+1	-11	9.4	A5
5	+8.7	-45.1	+3	-9	10.9	F0
6	+36.9	+29.3	-3	+9	8.9	F8

UX Cyg 561 M 9.0-14.8
$20^h50.9^m$ +30° 02' 42° -10°

No.	X	Y	μ_α	μ_δ	m	Sp
			+5	-1		
V	+10.2	+3.5	-9	+2	11.4	M4e M6e
1	-61.5	-9.5	+15	-4	11.8	...
2	-35.9	+29.3	-29	+7	11.0	...
3	-18.6	-47.2	+1	+9	10.7	F0
4	-8.5	+47.5	+12	-12	11.6	...
5	+9.1	-52.3	+1	-9	10.9	K0
6	+27.2	+12.5	+16	-7	11.7	...
7	+42.8	+37.8	0	+12	11.1	...
8	+45.4	-18.0	-17	+4	11.5	...

RR Cap 277 M 7.8-14.6
$20^h56.4^m$ -27° 29' 347° -41°

No.	X	Y	μ_α	μ_δ	m	Sp
			+10	-12		
V	-28.6	-6.7	+11	+8	9.9	M5e
1	-68.8	-18.4	+3	-3	10.3	G5
2	-68.3	-46.3	+9	+3	11.4	G5
3	-43.4	-7.6	-3	-12	10.8	F8
4	-26.8	+0.6	+7	+16	10.0	F5
5	-21.1	+38.5	-12	-11	11.9	G:
6	-10.7	+3.2	-4	+8	11.3	G:
7	+7.6	+39.8	+7	-42	11.7	F:
8	+7.7	+21.6	-8	+3	10.6	K0
9	+29.4	-24.3	+20	+34	12.1	K:
10	+59.8	+28.9	+10	+26	12.0	G0
11	+62.8	-8.9	+59	+25	10.5	G0
12	+71.8	-27.1	-86	-46	10.0	G0

R Vul 137 M 7.4-13.4
$20^h59.9^m$ +23° 26' 38° -16°

No.	X	Y	μ_α	μ_δ	m	Sp
			+7	-3		
V	-9.1	+14.3	-8	+8	10.2	M4 M5e
1	-54.2	+34.8	-3	-1	10.3	K:
2	-42.8	-36.5	-2	+20	10.2	K5:
3	-35.0	-7.2	+8	-19	10.5	G:
4	-21.1	+26.5	-3	+1	10.4	...
5	+13.4	+28.9	-4	-3	10.4	A0
6	+26.3	-26.6	-8	+3	10.6	G5
7	+45.8	-47.2	+3	-3	9.8	K0
8	+67.6	+27.3	+10	+3	9.9	K0

TW Cyg 342 M 8.9-15.0
$21^h01.7^m$ +29° 00' 43° -13°

No.	X	Y	μ_α	μ_δ	m	Sp
			+7	-2		
V	+11.8	+2.3	-1	-4	10.7	M9ep
1	-71.6	-29.8	+4	-2	11.0	...
2	-44.9	-28.1	+7	-2	9.4	K:
3	-34.1	+29.9	-3	-7	9.8	K0
4	-9.5	+25.6	-8	+11	10.2	K0
5	+19.8	-31.1	-5	+5	10.6	K:
6	+36.2	+30.2	+1	-4	10.9	K0
7	+42.6	-21.3	-6	-1	10.5	K0:
8	+61.5	+24.6	+10	0	10.4	K0

X Cep 534 M 8.1-16.0
$21^h03.7^m$ +82° 40' 84° +24°

No.	X	Y	μ_α	μ_δ	m	Sp
			+8	+7		
V	-14.3	+14.4	+15	+19	10.2	M5e
1	-66.5	13.5	0	+3	11.4	K0
2	-61.8	+41.4	-16	-11	9.9	K0
3	-19.7	-26.1	+3	-4	10.1	K0
4	-12.1	+3.4	+14	+12	9.1	K2
5	+11.7	+16.3	-7	-8	10.7	K5
6	+44.8	-27.6	+7	-3	9.5	A0
7	+50.7	-39.4	-10	+4	9.6	K0
8	+52.9	+45.5	+10	+7	11.2	G5

Z Cap 182 M 8.6-15.0
$21^h05.1^m$ -16° 35' 1° -39°

No.	X	Y	μ_α	μ_δ	m	Sp
			+7	-8		
V	-11.3	-10.7	-10	-1	10.2	M2e
1	-53.7	-42.3	-19	+10	11.5	...
2	-52.9	+26.6	-22	+9	11.6	...
3	-8.5	-1.8	+29	-14	10.9	K:
4	-7.5	+10.9	+11	-5	10.8	K:
5	+4.4	+50.0	+14	+5	11.6	...
6	+14.0	-48.8	-24	+13	9.3	F2:
7	+49.7	+11.9	-3	-10	11.3	...
8	+54.5	-6.5	+14	-9	10.2	K0

Z Cap 182 M 8.6-15.0
(Y) $21^h05.1^m$ -16° 35' 1° -39°

No.	X	Y	μ_α	μ_δ	m	Sp
			+8	-9		
V	-7.7	+4.9	-8	+1	10.6	M2e
1	-67.4	-45.0	-3	+15	11.5	G:
2	-54.2	-30.2	-1	-10	11.5	F8
3	-53.6	+45.9	+9	+14	11.6	G:
4	-30.9	+31.9	-4	-18	11.3	G0
5	+20.4	-37.2	-23	-1	9.3	F2
6	+59.5	+29.7	-8	+3	11.3	K:
7	+61.3	-4.4	+28	-4	11.7	G:
8	+64.8	+9.4	+3	+1	10.2	K0

AM Peg 137 SRa 9.0-11.0
$21^h05.4^m$ +12° 03' 30° -24°

No.	X	Y	μ_α	μ_δ	m	Sp
			+9	-5		
V	-1.4	+9.7	+3	-2	9.0	M2e
1	-43.4	-45.1	-2	-8	10.8	F0:
2	-39.8	+34.7	-2	+8	10.9	...
3	-36.4	-24.1	0	+8	10.7	...
4	-32.0	+21.5	+5	-8	9.7	F5
5	+10.9	+17.9	+12	-9	10.7	...
6	+42.2	+40.2	-14	+9	9.5	K0
7	+41.4	-35.6	-16	-8	10.2	K:
8	+57.1	-9.5	+18	+8	10.4	K0

RS Aqr 215 M 9.5-14.4
$21^h05.7^m$ -04° 26' 15° -34°

No.	X	Y	μ_α	μ_δ	m	Sp
			+10	-9		
V	+0.3	+1.0	-8	+11	11.0	Me
1	-60.1	-10.1	+41	+21	10.0	F5
2	-58.3	-7.5	+13	+28	10.8	F2
3	-21.9	+21.5	+12	0	9.2	F2
4	-2.4	-12.2	-64	-52	10.6	G5
5	+19.9	+13.4	+27	+6	10.6	F8
6	+22.6	+8.7	-20	-9	10.4	F8
7	+36.5	+14.3	-16	0	9.9	K0
8	+63.8	-28.1	+10	+6	10.9	G0

RS Aqr 215 M 9.5-14.4

(Y) $21^h05^m.7$ -04° 26' 15° -34°

No.	X	Y	μ_α	μ_δ	m	Sp
			+7	-7		
V	-12.7	+18.9	-1	+2	11.8	Me
1	-77.3	+9.8	+14	0	10.8	F2
2	-72.4	-16.0	+16	+11	12.4	F:
3	-63.4	-51.0	-19	-12	12.3	G
4	-24.4	+52.8	-11	+1	10.9	K:
5	+46.3	+65.3	-28	+18	11.1	F5:
6	+49.7	-70.7	+19	+10	10.7	G5
7	+62.9	-25.3	-16	-9	11.8	F5
8	+78.5	+35.0	+25	-19	11.5	...

T Cep 390 M 5.4-11.0

$21^h08^m.2$ +68° 05' 72° +13°

No.	X	Y	μ_α	μ_δ	m	Sp
			+9	+5		M5e
V	-1.3	-17.2	-42	-48	10.2	M7e
1	-57.5	-36.8	-6	-5	10.3	F0
2	-51.9	+45.1	+13	+14	9.9	M0
3	-42.4	+10.4	0	-2	9.2	K0
4	-26.3	-25.7	-7	-7	10.5	F0
5	+28.2	+32.8	+6	-21	10.1	F8
6	+30.4	-31.5	-6	-7	9.6	G5
7	+50.2	+18.4	-19	+8	10.5	K0:
8	+69.1	-12.7	+19	+20	10.0	F8

R Equ 261 M 8.7-15.0

$21^h08^m.4$ +12° 23' 31° -25°

No.	X	Y	μ_α	μ_δ	m	Sp
			+8	-5		M3e
V	-14.0	+5.9	-6	-5	10.4	M4e
1	-66.7	-39.2	-32	-5	11.6	...
2	-45.9	+46.8	-21	-8	10.2	...
3	-7.4	-6.9	+55	+8	10.6	K0
4	-6.2	+28.4	-3	+5	11.1	...
5	+6.4	-31.8	-5	+4	10.0	K0
6	+29.7	-45.4	-18	-7	10.9	K0
7	+36.9	+19.1	+23	+11	10.1	F5
8	+53.2	+29.0	0	-7	9.9	A5

RR Aqr 182 M 9.1-14.4

$21^h09^m.8$ -03° 19' 16° -34°

No.	X	Y	μ_α	μ_δ	m	Sp
			+11	-9		M2e
V	-2.4	-4.2	-5	-6	10.0	M3e
1	-42.5	+21.0	+11	+22	8.7	K0
2	(-27.0	-27.5)	(+55	-31)	10.0	G0
3	-24.3	+30.9	-6	-15	11.4	...
4	-7.9	-30.2	-4	-7	10.6	G:
5	+17.5	-58.9	+4	+7	10.4	K5
6	+57.2	+37.2	-4	-7	10.1	K5:

RR Aqr 182 M 9.1-14.4

(Y) $21^h09^m.8$ -03° 19' 16° -34°

No.	X	Y	μ_α	μ_δ	m	Sp
			+9	-7		M2e
V	+3.4	-9.5	+12	-6	10.6	M3e
1	-84.9	-56.4	+5	+22	11.6	...
2	-69.3	+41.8	+6	+3	11.5	K:
3	-20.5	+29.3	-2	-18	11.4	M3
4	-13.8	-20.4	-8	-8	11.9	...
5	+18.3	+52.8	+7	-2	11.6	...
6	+25.0	-69.8	+4	+13	10.4	K5
7	+69.2	+36.0	-11	+17	10.1	K5:
8	+76.0	-13.2	0	-28	11.7	...

X Peg 201 M 8.8-14.8

$21^h16^m.3$ +14° 02' 34° -25°

No.	X	Y	μ_α	μ_δ	m	Sp
			+9	-5		M2e
V	+8.5	-3.4	-12	-2	10.5	M4e
1	-53.3	-8.1	+1	-48	11.3	F8
2	-43.8	-6.2	+25	+25	11.0	K0
3	-4.4	+34.4	-26	+23	11.3	G5:
4	+4.4	-21.3	+13	+3	10.1	K0
5	+14.4	+13.6	-21	0	10.9	K0
6	+23.1	+38.6	-17	+10	11.4	G:
7	+25.6	-7.0	+21	+13	9.8	[illegible]2
8	+34.0	-44.0	+4	-45	10.9	G.

T Cap 269 M 8.4-14.3

$21^h16^m.5$ -15° 35' 4° -42°

No.	X	Y	μ_α	μ_δ	m	Sp
			+8	-9		M2e
V	-10.1	+11.3	-6	-9	10.7	M3e
1	-65.3	-34.0	+12	-18	11.6	..
2	-63.5	+29.9	+33	+19	11.5	...
3	-56.3	-24.2	-13	+15	11.3	G:
4	-47.6	-9.8	-12	+1	11.6	...
5	-18.7	+43.2	-14	-1	11.3	K0
6	-13.5	+22.6	-35	-16	9.4	K0
7	+19.6	+30.3	+7	+1	10.5	G:
8	+27.4	-15.8	+19	+3	10.6	F8
9	+41.6	-41.7	+11	+19	11.7	G:
10	+54.1	-41.7	-20	-25	11.8	K:
11	+55.1	+32.8	+3	+8	9.1	A5
12	+67.1	+8.3	-22	-11	11.4	K:

RW Aqr 140 M 8.7-13.6

$21^h18^m.0$ +00° 25' 22° -34°

No.	X	Y	μ_α	μ_δ	m	Sp
			+8	-6		
V	+7.9	-21.5	-6	+1	10.6	M2e
1	-52.0	+38.1	-9	-14	11.6	F8
2	-50.7	+20.9	-2	0	11.9	A0
3	-48.5	-11.6	+13	+2	11.7	A:
4	-27.3	-47.0	-2	+12	12.0	..
5	+24.6	-20.6	+5	-13	10.5	G5
6	+37.9	-42.9	-16	-1	10.0	G5
7	+48.9	+40.9	-1	-6	11.7	...
8	+67.1	+22.2	+12	+20	11.6	...

S Mic 209 M 7.8-14.3

(Y) $21^h20^m.8$ -30° 17' 344° -47°

No.	X	Y	μ_α	μ_δ	m	Sp
			+11	-12		
V	+6.0	-8.7	-28	+3	9.5	M3e
1	-88.1	-16.4	-29	+25	11.6	f:
2	-76.0	-8.2	+38	-55	10.6	g
3	-55.7	+36.3	+15	-11	11.0	g:
4	-35.8	-11.5	-6	+16	9.7	K0
5	-24.2	+18.9	-16	+21	11.9	...
6	-21.8	+9.2	-2	+3	12.6	...
7	+25.3	+9.0	-5	+43	10.3	F6
8	+30.7	+38.9	+4	-69	12.1	...
9	+55.7	-38.6	-11	+32	10.4	K
10	+57.3	+26.0	+4	+13	9.7	K0
11	+67.1	-46.0	-7	-3	11.6	...
12	+67.6	-17.5	+15	-16	10.5	G2

S Cep 487 M 7.4-12.9

$21^h36^m.5$ +78° 11' 81° +19°

No.	X	Y	μ_α	μ_δ	m	Sp
			+7	+4		N8e
V	-14.2	-9.2	+11	+4	10.0	$C7_4e$
1	-64.3	+16.0	-9	-34	10.3	G5
2	-33.0	+42.6	-3	+12	9.1	A0
3	-33.7	-8.3	+5	+18	10.2	G5
4	-32.8	-33.0	+6	+4	9.8	K0
5	+22.9	-39.4	-11	-11	10.8	K0
6	+38.7	+11.4	+15	+19	11.2	A0
7	+52.6	-47.8	-4	+3	11.0	A0
8	+49.6	-37.1	0	-10	11.1	F2

SS Cyg 50 UG 8.2-12.1

$21^h38^m.8$ +43° 08' 58° -8°

No.	X	Y	μ_α	μ_δ	m	Sp
			+2	-1		A1
V	-4.3	-1.5	+118	-39	10.2	dGep
1	-63.7	+6.6	-11	0	10.8	G0
2	30.9	-33.1	+4	+5	10.5	A0
3	-19.3	+35.0	+7	-5	10.0	G0
4	+26.4	-34.4	-3	-4	10.2	A:
5	+32.5	+34.3	+4	+5	10.1	G5
6	-53.0	-8.4	-1	-1	10.9	G5

RR Peg 264 M 8.5-14.6

$21^h40^m.0$ +24° 33' 46° -22°

No.	X	Y	μ_α	μ_δ	m	Sp
			+10	-4		M4e
V	+12.0	+12.6	-10	-3	10.2	M5e
1	-43.9	+24.8	-10	+5	11.3	G:
2	-40.9	-20.0	+9	+7	10.6	G0
3	-38.1	+10.5	+20	-5	10.0	F:
4	-22.8	-6.3	-18	-7	10.7	K0
5	+2.5	-45.1	+8	+6	10.7	F:
6	+35.1	+47.0	+1	+6	11.8	K0
7	+35.5	+12.9	-9	-5	10.2	K5
8	+72.6	-23.8	+1	-6	10.8	G5

TU Peg 322 M 8.2-13.8
$21^h40^m.2$ +12° 14' 37° -31°

No.	X	Y	μ_α	μ_δ	m	Sp
			+10	- 6		
V	- 7.4	- 7.7	- 5	-11	10.7	Me
1	-51.8	+ 2.3	+22	+ 5	10.6	...
2	-35.0	-14.7	+ 6	+14	11.3	...
3	-28.5	+29.2	-22	-19	11.6	...
4	- 8.5	-30.1	- 6	0	10.5	...
5	+17.9	-26.0	+ 3	- 6	10.6	...
6	+31.1	+19.8	+ 7	-19	10.0	G5
7	+32.8	+32.1	- 7	+34	10.2	K
8	+42.0	-12.6	- 4	- 9	11.9	...

R Gru 332 M 7.4-14.9
(Y) $21^h42^m.1$ -47° 23' 318° -51°

No.	X	Y	μ_α	μ_δ	m	Sp
			+11	-11		
V	-12.4	- 7.4	+ 9	+ 2	10.6	M5e
1	-83.6	-42.9	-24	+ 3	11.0	gk
2	-45.7	+43.0	+19	0	12.5	...
3	-44.3	+16.3	-10	+ 4	12 6	...
4	-37.7	-67.5	-11	+ 9	10.9	...
5	-29.7	+32.1	- 6	- 1	12.2	...
6	- 3.5	-22.7	+32	-14	11.8	...
7	+ 8.9	-28.7	+27	- 3	11.4	G3
8	+17.0	+64.9	+14	+16	11.6	...
9	+38.0	-15.5	0	+16	12.0	...
10	+40.8	+10.7	+12	+ 9	10.7	G5:
11	+56.8	+61.8	-29	-28	12.1	f:
12	+83.0	-51.5	-24	-11	12.0	...

WY Cyg 304 M 7.6-14.9
$21^h44^m.8$ +43° 47' 60° - 8°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 7	0		
V	+ 9.1	+ 5.8	+18	0	10.3	M6e
1	-60.4	+ 9.8	+10	+14	11.0	F8
2	-39.5	-10.9	+14	+11	10.8	A0
3	-28.7	-41.7	-24	-17	10.7	G0
4	-16.2	+41.3	+ 1	- 7	10.8	A2
5	+25.8	+42.1	+ 3	0	10.2	K0
6	+28.6	-35.5	+ 1	+ 1	10.7	F0
7	+40.5	+15.3	-14	- 6	10.5	G:
8	+49.9	-14.4	+ 9	+ 5	10.8	A0

V Peg 302 M 7.8-15.0
$21^h56^m.0$ +05° 38' 34° -38°

No.	X	Y	μ_α	μ_δ	m	Sp
			+13	- 8		
V	- 8.3	+ 8.4	+ 6	+ 4	10.2	M3e M5e
1	-43.4	+ 2.2	-22	-20	10.2	G0
2	-20.6	+44.7	-12	-14	9.7	K2
3	-15.8	-36.8	-15	+ 4	10.8	G5
4	- 7.9	-40.7	+31	+ 9	8.7	G:
5	- 4.2	+20.7	+18	+21	10.8	G5
6	+ 2.8	+18.2	+21	+12	10.6	G:
7	+28.9	+38.1	- 5	+ 1	10.4	K
8	+60.2	-46.4	-16	-14	10.5	K0

S PsA 272 M 8.0-13.4
(Y) $21^h58^m.1$ -28° 32' 349° -54°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 7	- 7		
V	+30.9	- 2.0	+10	+ 2	12.9	M3e M5e
1	-64.8	-26.0	-17	+ 9	12.7	...
2	-59.4	-50.2	+32	+ 3	13.2	...
3	-41.7	+40.1	+20	-14	11.8	...
4	-37.0	+ 5.4	+14	+28	12.6	...
5	- 9.5	+26.7	-35	-31	12.2	...
6	- 9.4	-16.6	-14	+ 5	12.4	...
7	+14.2	-45.7	-38	- 8	13.3	...
8	+30.9	+49.1	- 7	+ 7	13.1	...
9	+35.2	+38.1	+10	+14	13.7	...
10	+36.8	-24.7	0	+ 9	13.1	...
11	+41.9	-31.2	+38	-18	12.2	...
12	+62.8	+35.2	- 3	- 4	13.1	...

RT Peg 215 M 9.4-15.0
$21^h59^m.8$ +34° 38' 56° -17°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 8	- 2		
V	- 7.9	- 6.7	+10	+ 3	10.2	M3e M4e
1	-48.3	+17.5	-70	-43	10.2	G5
2	-42.9	-38.6	+25	+14	10.4	A0
3	-15.4	-34.5	+10	+14	10.3	A0
4	-13.7	+41.2	+35	+15	11.1	...
5	+ 5.3	+27.1	+10	+17	10.5	G5
6	+35.0	+40.1	+25	+10	10.3	K0
7	+36.6	-23.5	-22	-35	11.2	G5
8	+43.4	-29.3	-13	+ 7	11.5	G:

RZ Peg 439 M 7.6-13.6
$22^h01^m.5$ +33° 01' 56° -18°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 9	- 2		
V	+18.3	- 2.0	- 6	+ 3	10.5	N C9e
1	-34.3	+36.1	+12	+ 8	10.8	G5
2	-34.6	-38.6	-12	+10	10.4	F2
3	-23.2	+36.5	+ 1	+ 9	11.7	K0
4	-17.3	-38.8	- 1	-28	10.2	G0
5	+ 4.2	+31.6	- 6	- 2	10.6	K0
6	+16.2	-26.9	+15	+25	10.0	F2
7	+34.4	+14.6	- 7	-15	9.6	K0
8	+54.6	-14.5	- 2	- 7	11.0	K0

T Peg 374 M 8 7-15.4
$22^h04^m.0$ +12° 03' 41° -35°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 8	- 4		
V	+ 6.7	+ 1.2	-11	+29	11.5	M6e M7e
1	-67.3	-31.9	+30	-40	11.6	K0
2	-54.5	+14.7	0	+24	11.4	K2
3	-32.8	+15.6	-13	+26	10.5	K0
4	-14.2	-39.9	-17	- 9	11.6	K2
5	+26.5	+43.4	+27	-86	11.0	A5
6	+40.2	+27.2	-13	+36	10.6	K2
7	+42.0	- 6.8	-14	+21	11.5	K0
8	+60.1	-22.3	0	+29	11.8	K0:

Y Peg 207 M 9.6-16.0
$22^h06^m.8$ +13° 52' 43° -34°

No.	X	Y	μ_α	μ_δ	m	Sp
			+10	- 5		
V	- 6.5	- 7.9	-23	+18	10.8	M3e
1	-61.7	-37.6	-16	+23	11.1	...
2	-49.6	+45.7	+30	-54	11.1	G0
3	-34.7	-41.5	-10	+ 9	11.4	...
4	-13.7	+44.8	- 4	+22	11.3	K0
5	+15.2	-26.0	-21	+ 5	11.4	...
6	+18.0	+27.9	-16	+20	11.0	K5
7	+57.4	+20.0	-11	+11	10.7	F8
8	+69.1	-33.3	+47	-36	11.2	K0

RS Peg 413 M 8.2-14.6
$22^h07^m.4$ +14° 04' 43° -34°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 9	- 5		
V	+ 1.7	+ 6.4	+ 4	+23	10.0	M6e M7e
1	-69.0	+25.8	+19	-64	11.1	F8
2	-40.1	+ 1.3	-10	+ 3	10.8	K2
3	-33.2	+26.4	- 4	+22	11.5	K0
4	-21.5	-13.3	+17	+23	9.6	K0
5	- 3.1	-44.0	-21	-15	11.6	K0
6	- 3.4	+39.3	+14	+16	11.9	K0
7	- 1.2	+ 9.8	-16	+15	11.0	K0
8	+13.9	-26.9	+ 6	+11	11.7	K0
9	+19.9	+42.6	- 3	+ 8	10.9	M0
10	+30.1	-28.9	-38	-26	10.6	K0
11	+45.5	-18.3	+ 2	+ 5	11.4	K0
12	+62.1	-13.8	+33	+ 3	11.6	K0

SS Aqr 193 M 8.6-13.2
$22^h14^m.5$ -14° 54' 14° -54°

No.	X	Y	μ_α	μ_δ	m	Sp
			+16	-12		
V	- 2.2	-12.0	-19	-22	10.7	M2e
1	-57.7	-52.1	+38	+ 8	9.1	G5
2	-44.6	+38.6	-15	+19	9.7	F8
3	-42.3	-12.4	-15	-52	9.7	K0
4	-24.2	+14.0	+12	-47	11.1	...
5	-17.1	+22.2	+17	-10	10.8	...
6	-13.6	+ 3.6	+ 4	-33	9.8	F2
7	- 6.7	+28.2	-40	+15	9.4	F5
8	+22.5	-38.7	-12	-35	9.1	F2
9	+29.2	-36.2	-15	-26	11.4	F8
10	+42.7	+12.2	+31	- 9	11.7	...
11	+44.8	+42.7	- 9	+64	11.6	...
12	+67.0	-22.1	+ 5	+ 6	8.7	K5

RT Aqr 246 M 8.8-13.1
(Y) $22^h17^m.7$ -22° 34' 1° -57°

No.	X	Y	μ_α	μ_δ	m	Sp
			+14	-11		
V	+ 1.7	- 1.1	+39	+ 9	10.3	M5e M6e
1	-71.6	-62.1	-20	-10	11.2	...
2	-58.5	+24.5	+10	- 9	11.2	...
3	-50.6	+69.1	-20	+ 4	11.2	...
4	-22.4	- 9.6	+14	- 9	12.0	...
5	-20.3	-66.9	+ 5	+12	11.7	...
6	-11.2	+70.6	+11	+12	11.3	...
7	+22.5	+36.2	+ 6	-27	11.3	.
8	+23.3	-11.8	-30	- 3	11.0	...
9	+29.3	-48.9	- 1	+31	10.7	...
10	+39.1	+48.5	-13	+20	11.0	...
11	+5[illegible] 1	-61.3	+31	-21	9.8	...
12	+61.4	+11.7	+ 6	+ 1	11.3	...

T Gru 1'7 M <u>7.8-12.3</u>
(Y) $22^h19^m.8$ -38° 05' 332° -59°

No.	X	Y	μ_α	μ_δ	m	Sp
			+11	- 8		
V	+12.0	- 3.1	- 9	-17	10.4	M0e
1	-79.1	-39.7	- 8	- 9	11.7	f
2	-69.1	+45.5	+19	- 4	11.6	...
3	-67.2	+15.5	0	+25	12.1	...
4	-52.0	- 7.5	- 1	+ 2	11.6	...
5	-13.2	- 4.3	+ 6	- 1	11.3	...
6	- 4.5	+25.5	-16	-13	12.7	g:
7	+16.5	-54.6	+ 1	+ 4	11.9	...
8	+32.6	+43.3	- 3	- 1	12.9	...
9	+33.2	+63.6	+15	- 3	11.7	...
10	+43.0	-67.8	-12	0	12.4	...
11	+78.2	-47.1	+15	+ 4	12.3	...
12	+81.5	+27.9	-16	- 3	12.7	...

RV Peg 389 M 9.0-14.5
$22^h21^m.0$ +29° 58' 58° -23°

No.	X	Y	μ_α	μ_δ	m	Sp
			+10	- 3		
V	- 0.4	- 3.6	- 8	- 4	10.8	M6e
1	-34.2	-43.7	+ 4	- 2	10.4	K0
2	-23.8	+17.3	- 8	+ 6	10.5	G5
3	- 9.3	-21.4	- 2	+ 1	10.8	K:
4	- 6.5	+30.2	+ 5	- 5	11.9	G:
5	+ 4.5	-23.4	+ 9	+ 7	11.8	G5
6	+15.6	- 3.3	-11	- 6	11.2	F8
7	+21.6	+27.7	- 6	- 5	11.2	G:
8	+32.1	+16.6	+ 8	+ 4	11.0	G5

S Lac 240 M 7.6-13.9
$22^h24^m.6$ +39° 48' 64° -15°

No.	X	Y	μ_α	μ_δ	m	Sp
			+13	- 3		
V	-10.4	+ 6.9	-14	- 1	9.6	M5e M6e
1	-49.3	+43.6	+44	+15	9.8	G5
2	-49.5	+23.5	- 6	- 6	10.3	K0
3	-41.8	-17.3	-38	- 9	9.4	K:
4	+46.8	+26.4	-38	- 9	10.4	A0
5	+46.3	-47.2	+26	-34	8.9	K0
6	+47.4	-29.0	+13	+43	9.0	G0

R Ind 216 M 8.2-14.6
(Y) $22^h28^m.9$ -67° 48' 287° -46°

No.	X	Y	μ_α	μ_δ	m	Sp
			+13	- 8		
V	+ 6.1	- 1.1	-11	+19	9.8	M2e M3e
1	-66.8	+20.2	+ 9	+42	11.3	G2
2	-63.8	+33.8	- 1	0	11.8	G5:
3	-59.6	-19.9	+104	-85	11.4	gk:
4	-25.6	-24.5	-54	-10	12.0	fg:
5	-24.2	+12.1	-21	+29	12.3	fg:
6	- 2.0	-33.0	-36	+23	12.1	K
7	+26.7	-56.7	-25	+11	11.2	...
8	+31.2	-13.3	-10	+38	11.8	...
9	+34.8	+34.2	-178	-141	10.2	K5:
10	+38.7	+44.2	+66	+34	11.2	G2
11	+53.6	+19.0	+126	+36	10.8	G2
12	+56.9	-16.1	+25	+23	11.9	g

SS Peg 416 M 8.0-13.0
$22^h29^m.2$ +24° 03' 56° -29°

No.	X	Y	μ_α	μ_δ	m	Sp
			+16	- 7		
V	+ 6.4	+ 7.0	- 3	+27	9.8	M7e
1	-39.3	+16.2	+60	- 4	8.7	G5
2	-32.1	-28.5	-55	+12	10.5	G5
3	- 8.0	+14.2	-35	-42	9.6	F8
4	- 7.0	+38.7	+30	+35	10.5	K0
5	+ 7.2	-25.9	+43	+17	11.2	G5
6	+14.5	+15.6	+ 4	-15	9.6	G0
7	+31.8	-71.3	+12	-29	9.8	G5
8	+32.9	+41.0	-58	+26	10.4	G5

R Lac 300 M 8.5-14.8
$22^h38^m.8$ +41° 51' 67° -15°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 8	- 2		
V	- 6.4	- 0.3	+ 3	+10	10.3	M5e
1	-60.7	+ 7.8	-15	-24	8.4	K0
2	-38.4	-17.1	+15	+10	9.2	K0
3	-35.6	-35.1	0	0	11.1	...
4	-20.0	+51.0	- 1	+14	9.8	A0
5	+ 7.8	-25.2	-11	- 3	10.4	F0
6	+25.2	+21.0	+18	+16	11.7	K0
7	+60.0	+ 7.3	- 2	- 7	10.2	A0
8	+61.8	- 9.7	- 5	- 7	10.1	A0

S Aqr 279 M 7.6-15.0
$22^h51^m.8$ -20° 53' 10° -64°

No.	X	Y	μ_α	μ_δ	m	Sp
			+16	-11		
V	+ 0.1	- 0.3	- 7	+ 4	10.8	M4e
1	-48.2	-33.1	+35	+68	8.6	G5
2	-46.1	- 2.7	-76	-167	10.3	G5
3	-34.6	+45.8	+ 6	+56	10.9	G5:
4	-24.6	+43.9	+10	- 4	10.8	...
5	-14.5	-36.3	+26	+47	11.8	...
6	+ 0.2	-45.5	+24	+29	11.3	...
7	+ 6.1	-13.7	+ 6	+ 3	10.7	K0
8	+23.5	-31.9	+12	+18	11.1	F8
9	+24.8	+35.0	+50	+13	11.8	...
10	+29.8	+55.4	-35	-29	11.0	G5:
11	+37.8	-43.0	[illegible]	+ 1	10.5	G0
12	+46.0	+26.1	-30	[illegible]	11.9	...

SZ And 344 M 9.8-14.5
$22^h55^m.0$ +42° 18' 70° -16°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 7	- 2		
V	+ 2.4	+ 0.2	0	- 1	10.5	M2e
1	-62.6	-29.1	+ 8	- 1	11.1	A:
2	-57.5	+22.9	+ 2	0	10.1	K0
3	-17.2	- 9.3	+ 1	+ 1	10.2	A0
4	- 3.9	+ 4.2	-12	- 1	10.6	...
5	+ 2.3	+50.9	- 6	+ 5	11.6	...
6	+45.2	-12.0	+11	+ 5	10.6	...
7	+46.7	+23.0	+16	- 5	10.9	...
8	+47.0	-50.7	-21	- 6	10.7	K:

AK Peg 195 SRa <u>8.9-10.8</u>
$22^h58^m.2$ +10° 49' 54° -44°

No.	X	Y	μ_α	μ_δ	m	Sp
			+17	-10		
V	+ 4.9	-11.8	- 1	+12	9.5	M5e
1	-64.3	+50.3	+13	- 7	10.4	F8
2	-52.4	-30.9	+11	+16	11.0	G5
3	-43.8	-11.9	-25	- 9	9.0	K0
4	+ 4.2	+31.7	-12	+ 1	11.0	...
5	+11.8	+29.9	- 1	+ 6	10.0	G:
6	+25.2	-21.2	- 5	+17	11.5	...
7	+53.1	-45.0	+11	-24	7.7	G5
8	+66.2	- 3.0	+ 7	0	10.2	K0:

RW Peg 209 M 8.8-14.6
$22^h59^m.2$ +14° 46' 57° -41°

No.	X	Y	μ_α	μ_δ	m	Sp
			+13	- 7		
V	- 4.5	+ 3.3	-13	+ 5	9.4	M3e
1	-60.5	- 2.5	+27	-11	9.9	F8
2	- 6.9	+14.1	-27	+11	11.2	G0
3	+ 1.5	-11.8	-12	+ 6	11.7	G0
4	+ 3.6	-35.5	-13	+14	11.0	K2
5	- 5.3	+47.7	+ 2	-17	12.1	G0
6	7.4	- 6.0	- 3	-47	11.5	K0
7	+24.3	+35.0	+25	+ 6	12.2	G0
8	+25.3	-41.0	+ 1	+37	10.5	K5

R Peg 378 M 7.1-13.8

$23^h01^m.6$ +10° 00' 54° -45°

+14 -8

No.	X	Y	μ_α	μ_δ	m	Sp
V	0.0	-11.0	+ 4	+ 3	10.4	M6e M9e
1	-53.8	+43.8	+10	+25	10.2	K0:
2	-49.9	+ 4.5	-57	-81	11.7	...
3	-31.4	-44.1	+16	+19	11.3	...
4	-22.5	-24.9	+ 1	+ 3	11.0	G:
5	-20.3	+30.8	+46	+14	11.6	...
6	- 7.8	+ 3.5	-27	-22	10.9	K0:
7	- 4.9	+ 8.8	+12	+18	12.0	...
8	+ 6.7	+29.6	+ 8	+11	12.0	...
9	+12.4	-39.5	+28	+ 5	9.9	K0
10	+33.1	+48.5	+16	+11	11.8	...
11	+67.6	-55.6	-42	-31	10.2	G:
12	+70.8	- 5.4	+ 2	+16	8.4	K2

UZ Cep 297 M 11.3-15

$23^h04^m.6$ +70° 04' 82° +10°

+ 9 0

No.	X	Y	μ_α	μ_δ	m	Sp
V	- 5.4	- 4.3	+ 3	+ 1	10.3	M5
1	-59.6	-23.8	- 7	- 7	11.1	G5
2	-41.9	+27.7	+ 4	+ 7	11.1	A0
3	-38.6	+33.8	+ 6	- 4	10.0	K0
4	-33.9	-20.7	- 3	+ 3	11.5	A0
5	+ 5.1	-10.5	+ 4	+ 3	10.8	A0
6	+52.1	-46.6	+ 6	+ 1	9.9	K0
7	+54.5	+22.3	- 7	+ 2	9.7	K5
8	+62.3	+17.9	- 4	- 5	9.3	K5

V Cas 228 M 7.3-12.8

$23^h07^m.4$ +59° 09' 78° - 1°

+ 6 - 1

No.	X	Y	μ_α	μ_δ	m	Sp
V	+ 6.4	+14.2	+15	-10	10.5	M5e M7e
1	-57.0	-35.5	- 7	- 2	10.8	A0
2	-50.0	+37.2	- 1	+ 1	11.2	A0
3	-39.3	-22.8	+15	+ 4	10.3	A0
4	- 6.8	+37.1	- 7	- 3	11.0	A0
5	+21.9	-15.6	- 1	0	11.1	F2
6	+24.0	+24.1	- 5	- 6	10.1	A0
7	+43.9	-45.5	- 7	- 2	10.0	A0
8	+63.3	+21.0	+13	+ 8	10.4	F0

W Peg 344 M 7.9-13.0

$23^h14^m.9$ +25° 44' 67° -32°

+11 - 5

No.	X	Y	μ_α	μ_δ	m	Sp
V	+ 6.0	- 6.2	+ 1	+ 1	10.8	M6e M8e
1	-71.5	+32.0	-10	+ 4	10.6	K0
2	-49.1	-32.9	+ 2	+ 8	11.5	G:
3	-11.3	+29.0	+ 2	-14	8.2	A0:
4	- 2.4	-28.0	+ 6	+ 2	10.3	K0
5	+11.9	-20.0	- 8	- 8	11.1	G5
6	+24.3	+21.0	+ 5	+24	10.8	K0
7	+46.3	+15.8	+ 3	-14	11.4	...
8	+51.8	-16.9	0	- 2	11.0	K5

S Peg 319 M 7.4-13.8

$23^h15^m.5$ +08° 22' 58° -48°

+15 - 9

No.	X	Y	μ_α	μ_δ	m	Sp
V	-23.4	-14.0	-26	-22	9.6	M5e M8e
1	-61.0	+41.8	-10	-17	11.0	G:
2	-55.5	+ 3.0	+ 4	- 3	10.0	K0:
3	-46.2	-31.0	-16	- 5	9.7	K0
4	-28.8	+18.6	+ 9	+14	9.9	K0
5	-25.3	-47.2	+ 3	+ 7	10.9	...
6	-23.6	+19.5	+10	+ 3	11.1	G:
7	+21.1	+ 4.9	0	+ 9	11.3	...
8	+30.3	+19.0	- 3	- 9	10.5	...
9	+39.6	-23.5	+ 8	+ 5	11.6	...
10	+43.3	+31.0	- 7	+13	11.2	...
11	+51.7	+19.1	- 1	-10	11.3	...
12	+54.4	-55.2	+ 5	- 7	10.7	G5

RY Cep 149 M 9.4-13.6

$23^h18^m.1$ +78° 25' 86° +17°

+ 8 0

No.	X	Y	μ_α	μ_δ	m	Sp
V	+ 8.7	- 4.8	+ 2	+17	10.3	M0e
1	-49.2	+41.1	+ 3	+ 1	11.4	A0
2	-36.1	+32.6	- 6	- 1	11.2	K:
3	-33.1	-51.3	+12	+12	10.2	K5
4	-14.1	-20.4	- 8	-12	10.6	...
5	+13.9	+10.4	+ 8	+11	11.4	...
6	+16.1	- 8.0	-10	- 5	11.7	...
7	+44.8	+39.9	- 4	-10	9.9	K0
8	+57.6	-44.2	+ 6	+ 5	11.4	K:

ST And 330 SPa 8.2-11.8

$23^h33^m.8$ +35° 13' 75° -25°

+10 - 4

No.	X	Y	μ_α	μ_δ	m	Sp
V	- 6.5	+ 0.9	- 4	- 7	10.6	R3e C31
1	-67.2	+15.2	+11	+ 1	10.7	A0
2	-48.3	+52.2	-10	- 8	9.4	K0
3	-34.3	-32.2	0	- 1	11.2	K:
4	-19.9	-39.6	- 1	+ 7	10.3	...
5	+17.1	-17.7	+ 3	- 6	10.5	K:
6	+43.4	+41.6	+ 3	+11	11.4	...
7	+46.0	-49.6	- 2	0	10.8	...
8	+63.2	+30.1	- 4	- 4	10.7	G:

R Aqr 387 M 5.8-11.5

$23^h38^m.7$ -15° 50' 37° -71°

+16 -10

No.	X	Y	μ_α	μ_δ	m	Sp
V	- 6.8	- 7.7	+43	-28	10.4	M7e+Pec.
1	-78.1	-36.9	- 5	+10	10.7	G5
2	-50.4	-36.5	-15	-13	10.4	G0
3	-29.9	+27.4	+10	+ 7	10.7	G:
4	-29.7	+27.6	+10	+ 6	10.5	G:
5	(-28.7	-35.2)	(+52	-10)	10.7	G0
6	+17.4	+44.4	-12	+ 9	9.3	F0
7	(+40.8	-27.5)	(-82	-37)	10.7	G:
8	+47.9	+10.8	- 8	-22	11.0	...
9	+61.1	-18.7	+ 9	+20	9.6	G:
10	+61.7	-18.1	+11	+30	10.8	...

Z Cas 496 M 9.4-15.0

$23^h39^m.7$ +56° 02' 82° - 5°

+ 4 - 1

No.	X	Y	μ_α	μ_δ	m	Sp
V	+ [illegible].2	+ 2.6	+ 9	- 3	10.3	M7e
1	-46.3	+ 3.7	- 7	- 9	10.0	A2
2	-45.3	+31.1	+ 6	+ 5	11.0	A0
3	-32.1	-30.1	+ 5	+ 2	10.6	A2
4	-10.5	-32.4	- 4	+ 2	10.4	A0
5	+16.0	-10.2	0	+ 1	11.1	A0
6	+17.7	-20.8	- 2	- 5	11.6	A0
7	+35.9	+17.6	- 2	+ 1	10.5	A0
8	+64.5	+41.2	+ 3	+ 3	10.9	A0

Z Aqr 137 SRa 9.5-12.0

$23^h47^m.1$ -16° 25' 41° -73°

+23 -14

No.	X	Y	μ_α	μ_δ	m	Sp
V	-14.8	- 3.0	+ 5	-12	8.5	M1e M3e
1	-73.7	-49.8	+ 2	- 3	8.6	G5
2	-63.0	+54.5	-13	+ 9	11.0	F8
3	-12.3	- 5.7	+10	- 6	9.8	G0
4	+28.7	-28.4	- 3	0	9.3	K:
5	+48.2	- 4.9	-10	+ 9	8.9	G0
6	+72.1	+34.3	+13	- 9	8.6	G5

RR Cas 300 M 10.1-14.4

$23^h50^m.8$ +53° 10' 83° - 8°

+ 7 - 2

No.	X	Y	μ_α	μ_δ	m	Sp
V	- 1.7	- 0.4	- 1	0	10.4	M5e
1	-58.1	+43.7	+ 7	+ 1	10.6	A:
2	-53.2	-45.3	-11	+ 4	10.8	K0
3	-20.3	+31.9	+ 2	- 4	10.5	A0
4	-16.1	-23.5	+ 1	0	11.1	...
5	+15.1	-30.5	+ 5	- 7	10.4	F0
6	+33.4	-14.4	+ 4	+ 3	11.1	...
7	+46.7	+ 5.3	+ 1	- 9	10.3	A2
8	+52.5	+33.7	-10	+12	11.5	...

R Phe 268 M 7.5-14.4

(Y) $23^{h}51^{m}.3$ -50° 21' 289° -66°

No.	X	Y	μ_α	μ_δ	m	Sp
			+13	- 6		
V	+ 3.0	+ 1.8	-25	+ 4	10.8	M3e
1	-86.2	+46.2	+32	+ 1	11.3	F5
2	-52.0	+ 6.6	+ 3	- 4	11.7	F8
3	-36.3	-34.0	+26	-14	11.0	G5
4	-19.4	+67.5	-39	+15	12.4	...
5	-11.1	-37.8	-30	-34	11.9	fg
6	-10.8	-59.0	+ 7	+ 9	10.5	F7
7	+17.4	-27.6	-20	+ 1	12.3	...
8	+21.7	+55.4	-61	+ 8	11.4	G5:
9	+30.6	-33.3	- 8	+ 8	12.4	...
10	+38.8	-65.8	+27	+ 3	11.5	F5
11	+47.4	+65.7	-42	+ 7	11.5	...
12	+60.0	+16.1	+105	-26	11.8	...

V Cet 260 M 8.6-14.6

$23^{h}52^{m}.8$ -09° 31' 57° -68°

No.	X	Y	μ_α	μ_δ	m	Sp
			+16	- 9		
V	+ 8.1	+ 0.6	-24	+ 1	9.9	M3e
1	-73.5	-15 1	+16	0	11.3	...
2	-59.8	-56.6	+ 7	-16	11.5	...
3	-54.6	+42 1	+15	+11	9.8	K0
4	-48.8	+35.0	+ 8	- 8	10.3	F8
5	-37.3	+41.1	-38	+ 6	10.4	K0
6	-23.1	- 4.5	- 9	+ 7	11.6	...
7	+ 6.0	+28.7	- 3	+ 5	11.7	...
8	+44.4	-50.7	-21	- 8	12.2	...
9	+46.7	+24.0	+ 1	+11	9.1	F8
10	+51.8	+ 9.8	+17	-25	11.3	G:
11	+73.2	-50.7	+26	-12	10 4	K0
12	+74.9	- 3.0	-19	+ 4	11.4	...

R Cas 431 M 5.5-13.0

$23^{h}53^{m}.3$ +50° 50' 83° -10°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 6	- 2		
V	+ 7.5	-17.6	+86	+19	10.2	M6e M8e
1	-68.9	-31.4	-10	- 2	10.9	A:
2	-59.1	+52.6	+ 1	- 2	10.7	F:
3	-18.2	-39.4	+ 7	+ 6	11.1	A:
4	-17.9	+35.9	+ 2	- 1	10.5	F0:
5	+ 2.8	+42.3	-25	- 6	10.2	A:
6	+11.4	-29.0	+ 3	- 3	9.4	A2
7	+71.6	-48.1	+ 1	0	9.7	A0
8	+78.2	+17.0	+22	+ 9	10.0	K0

Z Peg 325 M 7.7-13.6

$23^{h}55^{m}.0$ +25° 20' 78° -36°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 9	- 5		
V	+ 8.4	+11.5	0	- 8	10.6	M6e M7e
1	-63.8	-18.6	+ 5	+ 2	10.6	K:
2	-62.9	+18.4	+25	- 1	11.5	K:
3	-31.9	+30.0	-27	-12	10.9	F8
4	- 9.5	-33.4	- 3	+11	11.1	K:
5	+ 2.8	-39.2	+ 9	- 4	11.3	K:
6	+50.1	-35.3	-12	- 9	11.9	...
7	+53.4	+47.9	-42	- 5	12.3	...
8	+61.8	+30.2	+44	+18	11.4	K:

W Cet 351 M 7.1-14.6

$23^{h}57^{m}.0$ -15° 14' 50° -74°

No.	X	Y	μ_α	μ_δ	m	Sp
			+16	- 9		
V	- 2.0	+17.6	-33	+11	10.6	S7.3e
1	(-74.5	+49.0)	(+123	+29)	9.0	K0
2	-72.8	+18.0	0	- 8	11.4	...
3	- 9.0	-34.3	0	+ 8	9.9	G5
4	+ 4.2	+38.8	0	+ 8	12.1	...
5	+17.1	- 6.3	+13	-10	11.8	...
6	+60.5	-16.2	-13	+ 3	10.6	G0

W Cet 352 M 7.1-14.6

(Y) $23^{h}57^{m}.0$ -15° 14' 50° -74°

No.	X	Y	μ_α	μ_δ	m	Sp
			+13	- 6		
V	- 8.9	+10.1	+ 1	+ 6	11.6	S7.3e
1-	-77.8	+53.7	-22	-14	11.8	...
2	-74.8	-57.6	+ 2	-16	12.1	..
3	-55.9	-27.8	+13	+10	12.4	...
4	-31.3	+25.1	0	+ 4	11.5	...
5	-17.4	-47.0	-15	+28	9.9	G5
6	- 1 7	+33.4	+23	-11	12 1	...
7	+ 4.8	+57.7	+19	+12	11.5	...
8	+1' 6	-16.5	+14	- 6	11 8	...
9	+56.1	+17.7	- 4	+ 3	12 4	...
10	+57.0	+ 9.7	-16	+ 5	12.2	...
11	+59.4	-28 0	- 5	+ 3	10.6	G0
12	+69.7	-20.5	- 9	-18	12.0	...

Y Cas 414 M 8.9-15.3

$23^{h}58^{m}.2$ +55° 07' 84° - 6°

No.	X	Y	μ_α	μ_δ	m	Sp
			+ 8	- 3		
V	- 5 9	- 0.3	- 5	+ 1	10.3	M6e M8e
1	-45.0	+22.6	- 5	+ 1	10.3	K0
2	-36.2	+42.2	- 2	+ 3	10.0	F0
3	-36.3	-40.0	+ 9	+ 4	9.9	K0
4	-11.7	-20.8	- 3	- 7	10.0	K0
5	+ 4.8	-24.5	0	- 1	10.4	A2
6	+14.6	+ 6.9	+11	- 1	10.0	A5
7	+47.2	+28.7	- 4	- 2	10.7	A0
8	+62.6	-15.1	- 7	+ 4	10.5	A2

SV And 316 M 7.7-14.3

$23^{h}59^{m}.2$ +39° 33' 81° -22°

No.	X	Y	μ_α	μ_δ	m	Sp
			+14	- 6		
V	+ 7.5	-18.3	- 1	+ 9	10.1	M6e
1	-71.6	-26.3	- 7	+ 1	9 8	F2
2	-62.1	+41.8	+ 1	+24	10.4	K5
3	-38.0	-43.6	+15	+14	9.1	A0
4	-36.6	+41.9	- 9	-39	10.2	G:
5	+25 7	-18.2	+16	0	10.8	G0
6	+47 5	-58.1	-25	-14	10.9	F8
7	+66.4	+30.2	- 3	+21	11.7	...
8	+68.7	+32.3	+11	- 6	10.4	K5

END

OF

THE

CATALOGUE

ABSOLUTE PROPER MOTIONS SECULAR PARALLAXES, ABSOLUTE MAGNITUDES AND SPACE VELOCITIES OF MIRA TYPE VARIABLES

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Abstract. The radial velocities by Merrill and the proper motions derived by Alden and Osvalds (1961) from McCormick and Yale plates have been used to determine the mean distances and absolute magnitudes of 345 variables, of which 324 are Mira type, 18 are SRa and 3 are SRb. In general, the variables have been divided according to their period range into 8 groups of Mira stars (Se stars were singled out occasionally for some point of interest) and a group of 26 carbon stars.

Space velocities of 288 of these variables have been determined, the exclusion of 57 being necessary for lack of radial velocities. When these become available the arrangement of our material allows an easy incorporation into the present results.

The significant feature of this paper is the homogeneous set of proper motions. A comparison of the absolute magnitudes with those from other sources is given in Table V which reveals an acceptable agreement for variables with periods less than 300 days, but shows our magnitudes about one magnitude brighter than those of other sources for variables with periods greater than 300 days. The exception is the compilation by Miczaika which agrees well with ours for all except the longest periods.

In Table VII we show our space velocities with their dispersions in comparison with the results of other authors. As seen in Figures 2 and 4 our investigation indicates that Mira variables with periods less than 300 days move farther from the galactic plane, in orbits of greater inclination than those with periods more than 300 days.

For the computation of the interstellar absorption Parenago's formula has been used and the results are found to agree satisfactorily with observations by Gascoigne and Eggen. An average systematic differnce of 0.13 mag. between the mean maximum magnitudes by Campbell and those given in the General Catalogue of Variable Stars has been noticed.

The reality of the considerably greater brightness and large average space velocity of the group of Mira variables with periods less than 225 days probably could be determined definitely if radial velocities and proper motions were available for all known stars in this period group.

For other remarks see the abstract and introduction of the preceding paper by Alden and Osvalds.

I Data for Variables and Comparison Stars.

In addition to the relative proper motions of 345 variables, mentioned above, the relative proper motions of the following variables determined by Vyssotsky and Williams (1948) were at our disposal: another determination for R Comae Berenices, $\mu_\alpha\cos\delta = +0''.001$, $\mu_\delta = +0''.010$ (page 120); T Virginis, $\mu_\alpha\cos\delta = +0''.012$, $\mu_\delta = +0''.019$ (page 121); the absolute motions used were $+0''.001$ and $+0''.012$ respectively; R Hydrae, two determinations (page 124), the mean absolute motions used for combining them with those of Yale were $\mu_\alpha\cos\delta = -0''.050$, $\mu_\delta = -0''.004$. In general, a straight mean was taken in case two proper motion determinations of the same star were available. This was also done in combining the motions of the 22 stars in Section III and Table I.

Soon after we began work on this paper, the second edition of the General Catalogue of Variable Stars (1958) was published. In it Mira and Long-Period variables were re-examined and replaced by the six classes M (Mira), SR, SRa, SRb, SRc and SRd. In accord with this grouping our sample of 346 variables includes 324 Mira, 18 SRa, 3 SRb and 1 SRd stars. While all but two of them can be individually identified in the Catalogue of Proper Motions (page 115), for convenience those stars which do not fall into the Mira category are listed below:

SRa: RU And, ST And, Z Aqr, S Aql, S Aur, V Boo, S Cam, V CVn, T Cen, RZ Cyg, RS Dra, W Hya, TT Peg, AK Peg, AM Peg, R UMi, RU Vul.

SRb: V Aqr, X Mon, U Boo

SRd: Z Aur

After a helpful discussion with the late Dr. P. W. Merrill and with Dr. P. C. Keenan we decided

to retain for our solution all the stars in the sample with exception of Z Aur. A recent paper by Merrill (1960) in which he says that "the SRa variables may be considered as the short-period end of the Mira group rather than as a physically separate kind of variable" adds to the justification of our choice.

In the Cataloge of Proper Motions (page 115) data are given for each of the Mira type variables. These include the period, spectrum, apparent mean maximum visual magnitude, radial velocity, and the relative proper motion of the variable ($\mu_\alpha \cos\delta$ and μ_δ) with respect to the reference stars. The determination of these relative motions has been described by Alden and Osvalds (1961).

For practically all of the reference stars in the McCormick part the spectra had been determined on our 10-inch camera spectral plates by Joanne McNutt and Wanda Porterfield, and their magnitudes by S. A. Mitchell (1935), but for about 500 of the reference stars on the Yale plates, we lacked either spectrum or magnitude or both. Through the kindness of the Harvard Observatory the series of MF (Metcalf telescope F) plates were made available to us, and Dr. Dorrit Hoffleit determined the spectra of approximately 300 of them. In addition she was able to classify about 70 other field stars with known visual magnitudes given on AAVSO charts. The spectra of the latter ones were used in the determination of unknown visual magnitudes of the reference stars.

To determine the magnitudes of the remaining stars, a graph of the relation of the photographic magnitudes and diameters was made. On this graph were plotted: 1) stars with known spectrum and visual magnitude, converted to photographic (from the Henry Draper Catalogue); 2) stars with unknown spectrum but given visual magnitude (converted to photographic). For these stars a mean color index by E.T.R. Williams (1934 Table III) was used, 0.5 mag. for $0° < b^I < 20°$, 0.6 mag. for $b^I \geqslant 20°$ where b^I is the galactic latitude on the old system; 3) grating photographic magnitudes for the first order spectrum of the bright H.D. stars where the grating constant was 5.0 mag. A free hand curve was drawn through these points and then the mean photographic magnitudes of the reference stars according to their measured diameters were found.

The difference, $\Delta m_{pg} = m_{pg} - \bar{m}_{pg}$, was derived in each plate region for all the stars with known magnitudes; m_{pg} is the previously known magnitude and $\bar{m}_{pg}$ is the magnitude for a particular star read from the curve. These differences gave the expected evidence of a systematic difference between the given and the derived magnitudes in a particular region, the main cause being the not accurately known exposure time of the individual regions. The determined magnitudes were corrected for the systematic differences. These photographic magnitudes were converted back into photovisual ones by the color index when the spectrum was available, or by applying the mean color indices mentioned above when the spectrum was not known. The probable error of one magnitude determination was found to be ± 0.35 mag. Using all the available magnitudes of the reference stars, the magnitude scale appears to be dependable to about 0.2 mag. which has been considered sufficient for obtaining the secular parallax. Fig. 1 shows the general shape of the magnitude-diameter array.

II Reduction of Relative Proper Motions to Absolute

The proper motions of these Mira variables have been measured relative to a set of field stars, whose absolute motions are unknown. Since the effect of differential rotation and that of precessional motion are identical for the variable and its reference stars, it is not necessary to consider these two effects in the determination of the mean parallax. The mean value of the parallactic motion of the reference stars must be computed, however, and added to the relative motion of the variable. This mean value is found by assigning to each reference star, depending on its magnitude and spectral class, the value of its secular parallax.

For each of the comparison stars, the secular parallax h/r was found from one of the following sources: 1) for stars of known spectrum and $m_{pv} \leqq 11.4$, values were derived from Table 8.VII by Vyssotsky and Williams (1948), and 2) for stars with $m_{pg} \geqslant 11.0$ and unknown spectrum, the values were found in Table 8 by Binnendijk (1943).

For the relatively few stars brighter than $m_{pv} = 11.4$ with only indicated late spectrum a smoothed value of the secular parallax was used. This value was found by applying the derived percentages of the spectra based on the frequency of spectral types within latitude zones and magnitude range, as given in Bergedorfer Spektraldurchmusterung (1935). The percentages are 20% G5 and 80% K-K2 type stars. For each variable the mean value of h/r for its reference stars was determined, and the parallactic motions $\Delta\mu_\alpha$ and $\Delta\mu_\delta$ were found from the equations

$$P_\alpha \times \overline{(h/r)} = \Delta\mu_\alpha$$
$$P_\delta \times \overline{(h/r)} = \Delta\mu_\delta$$

where P_α and P_δ are the parallax factors taken from Bok's (1931) Tables 11 and 12.

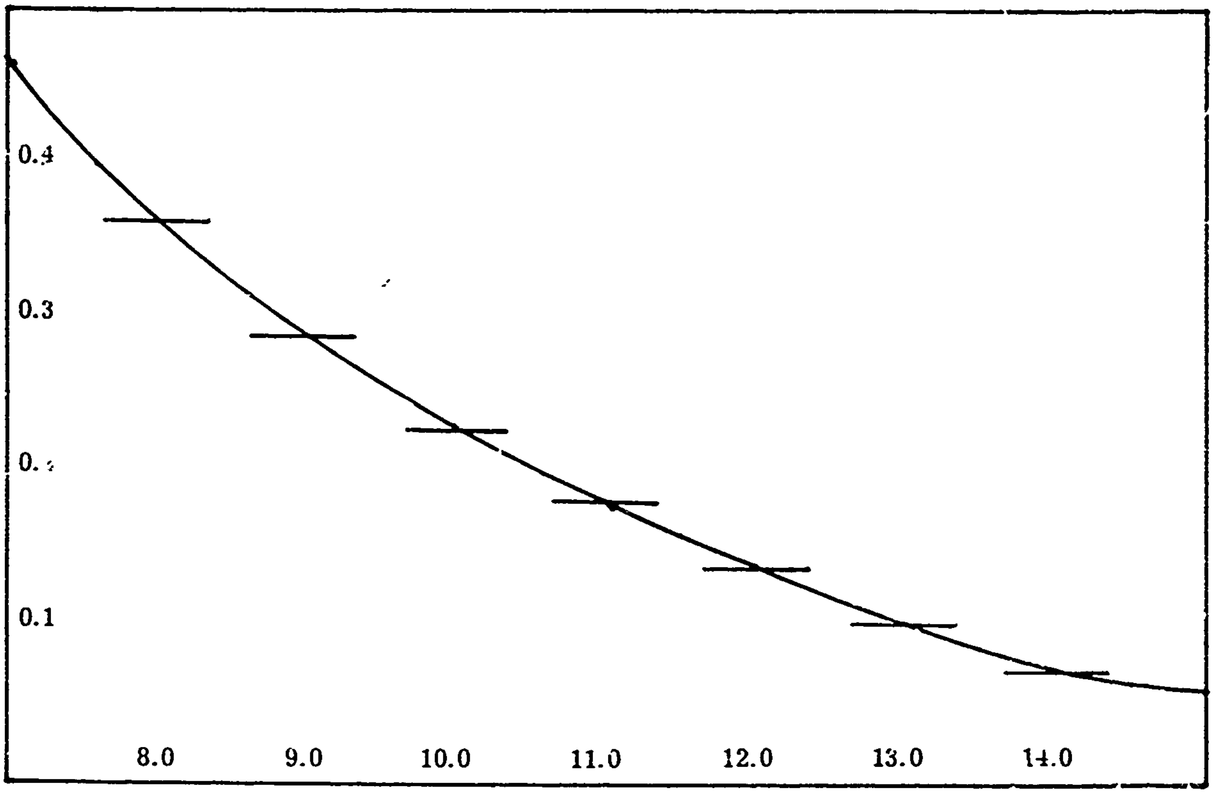


Fig. 1. Diameters in mm versus photographic magnitudes. Yale regions. Horizontal lines represent p. e. of one star, ±0.35 mag.

The absolute proper motion of a variable now can be found from the expressions:

$$\Delta\mu_\alpha + \mu_\alpha\cos\delta = \mu_\alpha\cos\delta \text{ (abs.)}$$
$$\Delta\mu_\delta + \mu_\delta = \mu_\delta \text{ (abs.)}$$

In the Catalogue of Proper Motions (page 115), on the third line for each variable the mean parallactic motion in R.A., $\Delta\mu_\alpha$, and in Decl., $\Delta\mu_\delta$, of its reference stars is given, and on the fourth line the relative proper motion of the variable. The sum of these two values gives the absolute proper motion for each variable in the catalogue.

III *Intercomparison of McCormick and Yale motions.*

Table I contains the material used and the results obtained in the comparison of the absolute proper motions for the 22 stars common to both the McCormick and the Yale plates.

The resulting means are $\Delta\mu_\alpha = +0''.001 \pm 0''.002$, $\Delta\mu_\delta = -0''.002 \pm 0''.001$. We decided to apply no corrections to the Yale motions to reduce them to the McCormick system because the systematic difference found was caused by a few relatively large values in a small sample.

IV *Secular Parallaxes of Variables.*

For further discussion the material is divided into 9 groups: eight depending on the period of light variation and the ninth – the Mira-type Carbon stars. The grouping is shown in Table II, and in more detail in Table VI. This division, though purely mechanical, has been chosen to make a convenient comparison with the results obtained by other researchers. However, the space velocities of individual stars are given in Table VI so that any other desired grouping is possible.

Secular parallaxes were derived by two methods.

1) Secular parallax from standard equations

$$P_\alpha \times h/r = \mu_\alpha, \quad P_\delta \times h/r = \mu_\delta$$

where μ_α and μ_δ are the derived absolute proper motions and h/r is the secular parallax; P_α, P_δ are parallax factors in α and δ, computed for the solar apex $A = 285°$, $D = +40°$ (as derived for the Mira variables by Wilson and Merrill, 1942) by the formulae:

$$P_\alpha = \cos 40° (\alpha - 285°)$$
$$P_\delta = -\sin 40° \cos\delta + \cos 40° \sin\delta \cos(\alpha - 285°)$$

The proper motions have not been reduced to

TABLE I

COMPARISON OF ABSOLUTE PROPER MOTIONS OF MIRA-VARIABLES

DERIVED FROM McCORMICK AND YALE PLATES

	x coordinate				y coordinate			
Star	McC	Yale	Δ_x	v_x	McC	Yale	Δ_y	v_y
				Unit = 0".001				
U Cet	+18	+12	− 6	+ 7.3	−14	−16	− 2	− 0.1
X Hya	−58	−43	+15	−13.7	− 2	− 7	− 5	+ 2.9
R Hya	−50	−31	+19	−17.7	− 4	+ 3	+ 7	− 9.1
T Cen	−26	−21	+ 5	− 3.7	+11	+ 5	− 6	+ 3.9
RT Lib	− 4	− 5	− 1	+ 2.3	− 8	0	+ 8	−10.1
RS Lib	+29	+36	+ 7	− 5.7	−11	−14	− 3	+ 0.9
R Lib	+23	+14	− 9	+10.3	+ 6	+ 2	− 4	+ 1.9
RR Lib	+11	+ 9	− 2	+ 3.3	− 2	−10	− 8	+ 5.9
RZ Sco	− 6	−15	− 9	+10.3	−25	−19	+ 6	− 8.1
S Sco	− 5	− 2	+ 3	− 1.7	− 5	+ 2	+ 7	− 9.1
R Sco	+ 7	+ 4	− 3	+ 4.3	+ 1	− 3	− 4	+ 1.9
V Oph	+18	+ 8	−10	+11.3	+ 4	+ 1	− 3	+ 0.9
RR Oph	+ 4	− 5	− 9	+10.3	−10	− 9	+ 1	− 3.1
R Oph	−23	−32	− 9	+10.3	−10	−24	−14	+11.9
RW Sgr	− 6	−16	−10	+11.3	− 2	− 4	− 2	− 0.1
RX Sgr	−13	− 2	+11	− 9.7	+16	+ 6	−10	+ 7.9
R Sgr	+12	+10	− 2	+ 3.3	−11	−10	+ 1	− 3.1
R Del	− 6	+ 1	+ 7	− 5.7	− 8	−10	− 2	− 0.1
Z Cap	− 3	0	+ 3	− 1.7	− 9	− 8	+ 1	− 3.1
RS Aqr	+ 2	+ 6	+ 4	− 2.7	+ 2	− 5	− 7	+ 4.9
RR Aqr	+ 6	+21	+15	−13.7	−15	−13	+ 2	− 4.1
W Cet	(+ 4)	+14	+10	− 8.7	(+ 7)	− 2	− 9	+ 6.9

[vv] = 1728.78 [vv] = 721.82
μ = ±0".0091 μ = ±0".0059
r = ±0.006 r = ±0.004

Mean difference $\bar{\Delta}_x = +0''.0013 \pm 0''.002$ $\bar{\Delta}_y = -0''.0021 \pm 0''.001$

$v_x = \bar{\Delta}_x - \Delta_x$ $v_y = \bar{\Delta}_y - \Delta_y$

Δ_x and Δ_y are in the sense Yale minus McCormick
μ is the mean square error of one difference
r is the probable error of one difference

the motion of stars at any standard distance since such a reduction would create a systematic error due to the unknown but considerable interstellar absorption near the galactic plane. This absorption affects the stars beyond this standard distance much more than those which are nearer than this distance.

For each group of variables the secular parallaxes, h/r, computed separately from μ_α and μ_δ, and their means are given in Table II (columns 6-8). They were converted to mean annual parallaxes using the relation

$$\bar{\pi}_s = \frac{h}{r} \times \frac{4.737}{V.}$$

where h/r has been taken from column 8 and V. from column 5 in Table II.

TABLE II

MEAN PARALLAXES: SECULAR AND ANNUAL, AND MEAN DISTANCE OF THE GROUPS

Grp	No. of Stars	Range of Period	Mean Period $\bar{P}$	V_o km/sec	From standard equations: h/r±p.e. from α ″0001	From standard equations: h/r±p.e. from δ ″0001	From standard equations: h/r±p.e. Mean ″0001	Mean annual $\bar{\pi}_s$ ″0001	From τ-components: θ km/sec	From τ-components: $\bar{\tau}$ ″0001	From τ-components: Mean annual $\bar{\pi}_t$ ″0001	$\frac{\bar{\pi}_s+\bar{\pi}_t}{2}$ ″0001	Dist pc
1	14	91-149	131.2	54	+216±47	+118±40	+153±31	+13.4±3	38	99	+12.3±2	+13±2	770
2	29	150-199	175.9	104	+140 29	+156 25	+164 18	+ 7.5 2	55	89	+ 7.7 1	8 1	1300
3	55	200-249	223.3	60	+107 27	+ 66 18	+ 74 16	+ 5.8 1	41	88	+10.2 1	8 1	1250
4	65	250-299	272.7	50	+ 60 18	+ 90 15	+ 83 12	+ 7.9 1	36	75	+ 9.9 1	9 1	1100
5	73	300-349	323.9	38	+168 20	+123 16	+152 13	+18.9 2	29	80	+13.1 1	16 1	625
6	42	350-399	376.0	31	+130 33	+ 86 27	+110 21	+16.8 4	23	92	+18.9 2	18 2	560
7	25	400-449	418.3	28	+134 25	+116 36	+150 22	+25.4 4	19	101	+25.2 2	25 2	400
8	18	450-612	508.2	22	+143 29	+ 74 21	+ 80 18	+17.2 3	10	24	+11.6 1	14 2	700
C	26	252-590	404.2	29	+ 73	+ 72	+ 73	+11.9 1	21	76	+17.0 1	14 1	700
Se	22	226-612	363.6	29	+ 21	+ 92	+ 56	+13.3 1	26	76	+13.8 2	13 1	740

All but two column headings are self-explanatory. V_o is the group motion adopted from Table 8 by Wilson and Merrill (1942) and adjusted to our periods where needed.

θ is the average linear peculiar motion in the direction of τ-component, adopted from Table 8 by Wilson and Merrill (1942).

In the first column, C stands for Carbon stars and Se for S-stars. The latter in general have not been treated as a separate group. In most of the computations they are mixed in with the groups 1-8 depending on their periods. They have been singled out for getting an idea of their distance, absolute magnitude and space velocity.

2) Mean Parallaxes from τ-components

τ-components were computed with the usual formulae:

$$\cos\lambda = \sin D \sin\delta + \cos D \cos\delta \cos(\alpha - A)$$
$$-\sin\lambda \cos\chi = \sin D \cos\delta - \cos D \sin\delta \cos(\alpha - A)$$

where (A, D) are coordinates of the solar apex with respect to the Mira stars, A = 285° = 19h and D = +40°.

λ = the angular distance between the solar apex and the star

χ = the position angle of the antapex.

Also $\bar{\tau}^2 = \bar{\tau}'^2 - \eta^2$

$\bar{\tau}$ = mean τ-component for a subgroup

$\tau' = \mu_\alpha \cos\delta \cos\chi - \mu_\delta \sin\chi$

η includes the measuring errors of both the variable star and the reference stars as well as the cosmic dispersions of the reference stars, i.e.

$$\eta^2 = \eta^2_1 + \eta^2_2;\ \eta_1 = \frac{|\bar{d}|}{\sqrt{2}};\ \eta_2 = \bar{\sigma}/0.845$$

$$|\bar{d}| = \frac{|d_\alpha| + |d_\delta|}{2}$$

$$|d_\alpha| = |\mu_{\alpha 2} - \mu_{\alpha 1}|$$
$$|d_\delta| = |\mu_{\delta 2} - \mu_{\delta 1}|$$

$\bar{\sigma}$ is cosmical error depending on galactic latitude.

The values of σ for given latitude and the number of reference stars, N, are as follows:

b^I:	0° — 20°,	21° — 40°	41° — 90°
$\bar{\sigma}$:	$0''.0044/\sqrt{N}$	$0''.0090/\sqrt{N}$	$0''.0140/\sqrt{N}$

To convert the τ-components into mean parallaxes, we use the relation

$$\bar{\pi}_t = \frac{4.737}{\theta}\bar{\tau}$$

Where θ, from Table II, column 10, is the average linear peculiar motion in the direction of the τ-component as derived by Wilson and Merrill (1942) and adjusted for our mean periods.

V *Absorption and Absolute Magnitudes*

Having found the mean distances for the groups, the mean interstellar absorption had to be derived. In spite of a vast number of papers published on this subject (see a list of 1039 titles by Kharadze, 1952), we have not been able to find any values of the absorption based on observations which would fit our needs in so many regions. The best applicable values are those in Table XLVIII by Kharadze (1952), but the area covered by his observations is rather small. So, we have decided to use Parenago's (1945) theoretical formula

$$A(r, b^I_1) = \frac{a_0\beta}{\sin b^I}\left(1 - e^{-\frac{r \sin b^I}{\beta}}\right)$$

where A = absorption in blue (photographic) light

a_0 = a constant, absorption per kiloparsec

β = 100 pc

r = average distance of the obscured star as given in Table II

b^I = galactic latitude of the star, on the old system

For the computations the numerical values of a_0 and their distribution have been taken as they appear on Parengo's (1945) chart. In regions for which an observed value of the a_0 from Kharadze's work is available, a mean of the theoretical and observational values of a_0 has been adopted. Kharadze's observational results are in satisfactory agreement with Parenago's theoretical values.

The derived absorptions, A, are for blue light. They can be converted to visual absorption using the relation $A_{vis} = 0.75A_{pg}$ as outlined in the Smithsonian Physical Tables, 9th ed. (1954).

Since almost all of our computed values of the absorption are based on extrapolated or even theoretical numerical values of a_0 (absorption per kiloparsec) it is desirable to compare our results with actual observations. Fortunately a paper by Gascoigne and Eggen (1957) provides us with such material. They have used photoelectric magnitudes and colors of 55 cepheids over all longitudes near the galactic plane, at mean galactic latitude, $b^I = -3°$. We have computed in the same way as for our Mira variables the absorption for the 55 cepheid variables in their Table II. The comparison of our computed value with that given by them is as follows: (Gasc. + Eggen) — McC=$\Delta A_{vis} = -0.19$ mag. This result is tolerable, especially if we consider the heavy and inhomogeneous absorption near the galactic plane. It seems fairly safe to say that at increased latitudes, the systematic difference should decrease, and so we have used our computed values of the absorption without any correction.

Our next problem was to decide on the magnitudes to correct for the absorption. Since the maximum magnitudes of the Mira variables may fluctuate by as much as 2 mags., the proper ones to use are the mean maximum magnitudes. There was only one source (Campbell, 1955) available at the time we started the computations. Soon afterwards, however, the 2nd edition of the General Catalogue

of Variable Stars (1958) was published. There are about 30 variables for which no mean maximum magnitude was available. For these stars various sources, given in Geschichte und Literatur des Lichtwechsels der Veränderlichen Sterne (1934-1960), were consulted and all available maxima were used for a mean maximum magnitude. For several stars only blue magnitudes were available. A statistical procedure was used to reduce them to visual magnitudes: some 50 variables whose blue m_{max} are given at various places in Harvard Annals (1952) were compared with their visual m_{max} from other sources. The mean color index is +1.29 mag., so 1.3 mag. was used to reduce all blue magnitudes to visual.

A comparison of the mean magnitudes given in the GCVS with those given by Campbell revealed an average systematic difference of 0.13 mag., Campbell's magnitudes being fainter, i.e. Δm = G.C.V.S. − Campbell = −0.13 mag. The number of stars used in this comparison and the differences for the groups are given in Table III.

TABLE III

SYSTEMATIC DIFFERENCE IN MAGNITUDES GCVS − CAMPBELL

Grp	No. of stars in grp	No. of stars comp.	GC-Cpb. m_{vis}
1	14	6	−0.08
2	29	18	−0.17
3	55	41	−0.14
4	65	52	−0.10
5	73	62	−0.11
6	42	37	−0.10
7	23	22	−0.18
8	18	16	−0.22
C	26	19	−0.14
		weighted mean	−0.13

Campbell's magnitudes are based on the Harvard visual system while, according to a letter from Prof. B. V. Kukarkin, the first author of the General Catalogue of Variable Stars, "information about the mean maximum magnitudes for Mira Ceti type stars given in G.C.V.S. is based on *all* published data, while maximum magnitudes in Campbell's study of Long-period Variables, 1955, pp. 235-241 are based only on AAVSO observations. This possibly may be the reason for the small systematic difference."

In our computations we have used the mean maximum magnitudes from G.C.V.S. For 77% of our variables the magnitudes are given, for the rest they were derived using corrections from Table III to Campbell's magnitudes. These individual magnitudes were corrected for the absorption derived above to obtain the final mean maximum magnitudes. These magnitudes were used to form the mean maximum of each group which combined with the distances already found for the groups gave the mean absolute magnitude for the groups. These values are shown in Table IV.

Table IV summarizes the results obtained from combining the group motions V_o, the average linear peculiar motions, (for computation of distance), as given by Wilson and Merrill (1942) and the proper motions derived at McCormick Observatory. It also gives the periods, apparent mean maximum magnitudes and the spectra at maxima as given in the General Catalogue of Variable Stars

TABLE IV

MEAN DISTANCES AND ABSOLUTE MAGNITUDES OF MIRA VARIABLES

Grp	No. of Stars	$\bar{P}$	$\bar{m}$ max.	$\bar{r}$ pc	$\bar{M}_{vis}$	$\overline{Sp}$	$\Delta\bar{M}$ (TiO)	$\bar{M}$ corr.
1	14	131	7.76	770	−1.67	M1.9	+0.27	−1.94
2	29	176	7.83	1300	−2.74	M2.7	+0.42	−3.16
3	55	223	8.38	1250	−2.10	M3.7	+0.70	−2.80
4	65	273	8.18	1100	−2.03	M4.2	+0.87	−2.90
5	73	324	8.05	625	−0.93	M5.3	+1.32	−2.25
6	42	376	7.69	560	−1.05	M6.2	+1.8	−2.85
7	23	419	7.70	400	−0.31	M6.5	+2.0	−2.31
8	18	508	8.06	700	−1.17	M6.0	+1.65	−2.82
C	26	404	7.75	700	−1.44			
Se	22	364	7.78	740	−1.57			

(1958), and the correction for TiO absorption by Gabovitš (1936).

Although this correction for TiO cannot account

TABLE V

ABSOLUTE MAGNITUDES OF MIRA VARIABLES — OTHER AUTHORS

Wilson & Merrill P	Wilson & Merrill M_{vis}	Kukarkin's revision of Wilson & Merrill P	M_{vis}	P	M_{vis}	Safronov No. of Stars	P	M_{vis}	ΔM (TiO)	M_{vis} corr	Miczaika P	M_{vis}	Sp	ΔM (TiO)	M_{vis} corr
150	−2.2	100	−2.7	325	−1.2	21	167	−2.7	+0.18	−2.9	150	−3.3	M1	+0.14	−3.4
175	−2.7	150	−2.9	350	−1.0	119	236	−1.4	+0.42	−1.8	200	−2.7	M2	+0.28	−3.0
200	−2.2	175	−3.1	375	−0.8	72	324	−0.6	+1.30	−1.9	250	−2.1	M3	+0.48	−2.6
250	−1.4	200	−2.8	400	−0.6	77	413	+0.5	+2.4	−1.9	300	−1.6	M4.5	+0.98	−2.6
300	−0.7	225	−2.4	450	−0.4						350	−1.0	M6	+1.65	−2.6
350	−0.2	250	−2.1	500	−0.2						400	−0.4	M7	+2.2:	−2.6
400	+0.3	275	−1.8	550	−0.1						450	+0.2	M8	+2.8:	−2.6
450	+0.6	300	−1.5	600	0										

For more detailed information see: R. E. Wilson and P. W. Merrill (1942, Table 9); V. S. Safronov (1955, Tables 6, 7, 8 and Table 2 for Kukarkin's revision) and for the compiled results and further references G. Miczaika (1946, Table 7). His table is based on the results by Ahnert (1939), Gerasimovič (1928), Gyllenberg (1930) Lundmark (1933) and Oort (1927).

for all the scattering in $\bar{M}$, it definitely brings the mean absolute magnitude ($\bar{M}_{vis} = -2.70$) for the variables, with periods less than 300 days, practically in agreement with $\bar{M}_{vis} = -2.56$ for the variables with P>300 days. While the qualitative character of the TiO correction looks quite real, the numerical values are based on only 3 stars for every spectral subclass (see Table I, Gabovitš, 1936). The probable error of our absolute magnitudes is estimated to be ±0.5 mag.

For the convenience of the reader we insert Table V which gives the absolute magnitudes derived or compiled by other authors.

In addition to these more extensive investigations, there are two recent papers dealing with the absolute magnitudes of variable Carbon stars and one with Mira type S stars. K. Ishida (1960) has found $\bar{M}_v = -2.5 \pm 0.7$ (p.e.) for 32 Mira type Carbon stars, which is a magnitude brighter than our value of −1.44. Apparently there are three reasons for this discrepancy. His mean maximum magnitude is 7.85, ours is 8.6; his mean distance is 1.02 kpc, but ours is 0.7 kpc, which means a difference in magnitude of 0.9; his correction for absorption is 0.36 mag. while ours is 0.85 mag. These three differences add up exactly to −1.1 mag.

In his investigation of R stars, G. L. Vandervort (1958) has found that 15 variables of this type have $\bar{M}_v = -1.18$. However, most of his variables are of the irregular type and therefore are not directly comparable with our carbon variables.

W. Takayanagi (1960) has found $\bar{M}_v = -3.0 \pm 0.5$ (m.e.) for 26 Mira type S-stars which is about 1.5 mag. brighter than our value of −1.57. His mean distance, $\bar{r}$, is 1.18 kpc, $\bar{m}_v$ (maximum) is 7.5, and mean absorption 0.4 mag. Our corresponding values are 0.74 kpc, 8.55 mag. and 0.8 mag. Here the differences add up to −1.6 mag. Concerning Takayanagi's Table 4 we would like to call attention to the fact that Keenan's (1954) $\bar{M}_v$ for S-type stars of the Mira class derived from proper motions and radial velocities is −1.0.

Although Feast (1953) investigated only one irregular S-type star, π^1 Gruis, we would like to mention that he found M to be between −1.0 and 0.

VI Space velocities.

The space velocities could be derived in two ways: 1) either by use of the *mean* radial velocity, proper motion and parallax, or 2) by use of *individual* values of these observations for every star. In order to enable any desirable future regrouping, we have chosen the second method.

The usual equations for the velocity components in the heliocentric equatorial coordinate system are:

$$\dot{x}_e = R_\rho \cos\alpha \cos\delta - T_\delta \cos\delta \sin\delta - T_\alpha \sin\delta$$
$$\dot{y}_e = R_\rho \sin\alpha \cos\delta - T_\delta \sin\alpha \sin\delta + T_\alpha \cos\delta$$
$$\dot{z}_e = R_\rho \sin\delta + T_\delta \cos\delta$$

with the space velocity

$$W = \sqrt{\dot{x}^2_e + \dot{y}^2_e + \dot{z}^2_e}$$

Here $R_\rho = R - \rho$ is the radial velocity of the star, corrected for galactic rotation, $\rho = A r \cos^2 b^I \times \sin 2(l^I - l^I_o)$. A is the coefficient of galactic rotation. We adopted the value of A to be 18km/sec/kpc based on the recent results by Petrie, Cuttle and Andrews (1956), Stibbs (1956), Gascoigne and Eggen (1957), Thackeray (1958), Edmondson (1956) as compiled and discussed by Edmondson (1959).

$$r = \frac{1}{\pi} \text{ for each individual star}$$

$$T_\alpha = \frac{4.737}{\pi} \mu_\alpha, \qquad T_\delta = \frac{4.737}{\pi} \mu_\delta,$$

where μ_α, μ_δ are the absolute proper motions and π is the stellar parallax, computed from the equation $M = m' + 5 + 5 \log\pi$

M is the mean absolute magnitude from Table IV, Column 6 for the group to which the star belongs and m' is the mean maximum visual magnitude of the star corrected for interstellar absorption. Having found R_ρ and T_α, T_δ the space velocity W was obtained from the expression:

$$W = \sqrt{T^2_\alpha + T^2_\delta + R^2_\rho}$$

However we were more interested in the distribution of the velocity vector points on the planes of the galactic coordinate system than in the individual values of these velocities. Therefore our W derived from the two foregoing expressions, served as a check, and $\dot{x}_e$, $\dot{y}_e$, $\dot{z}_e$ were used to compute the components of the space velocity in the galactic coordinate system, using equations:

$$\dot{x}_e = W \cos A \cos D$$
$$\dot{y}_e = W \sin A \cos D$$
$$\dot{z}_e = W \sin D$$

where A = R.A., D = Decl. of apex of the star's velocity

and $W = \sqrt{\dot{x}^2_e + \dot{y}^2_e + \dot{z}^2_e}$

The equatorial coordinates A, D found from $\tan A = \frac{\dot{y}_e}{\dot{x}_e}$ and $\sin D = \frac{\dot{z}_e}{W}$ were converted into galactic coordinates l^I, b^I by means of Ohlsson's tables (1932). We retained Ohlsson's galactic pole but oriented our positive x_g axis toward longuitude 58°, so we used $l^I_1 = l^I - 58°$ and the following equations for computing $\dot{x}_g$ $\dot{y}_g$, $\dot{z}_g$:

$$\dot{x}_g = W \cos l^I_1 \cos b^I$$
$$\dot{y}_g = W \sin l^I_1 \cos b^I$$
$$\dot{z}_g = W \sin b^I_1$$

Thus far the velocity components $\dot{x}_g$, $\dot{y}_g$, $\dot{z}_g$ are referred to the sun's motion as origin. However, the sun deviates from circular velocity around the galactic center (Vyssotsky and Janssen, 1951), so we added the components of Basic solar motion (Dyer, 1956) to obtain the velocity components, referred to circular velocity around the galactic center:

$a = \dot{y}_g - 9.8$ (away from the galactic center, toward $l^I = 148°$)

$b = \dot{x}_g + 10.2$ (in the direction of galactic rotation, i.e., toward $l^I = 58°$)

$c = \dot{z}_g + 5.9$ (toward the galactic North Pole).

Figures 3, 4, 5 display the distribution of the space velocity vector points. The captions explain the arrangement of the groups and the planes on which these points are projected.

The numerical values of W, a, b, c along with other information for every star are given in Table VI. Because the velocities of individual stars have been determined statistically, we were more interested in the mean values of the velocities, $\bar{a}$, $\bar{b}$, $\bar{c}$. They are given in Table VII together with the comparison of the results of other researchers.

MIRA VARIABLES, groups 1, 3, 4. Projection of space velocity vector points. Galactic longitude 58° to the right

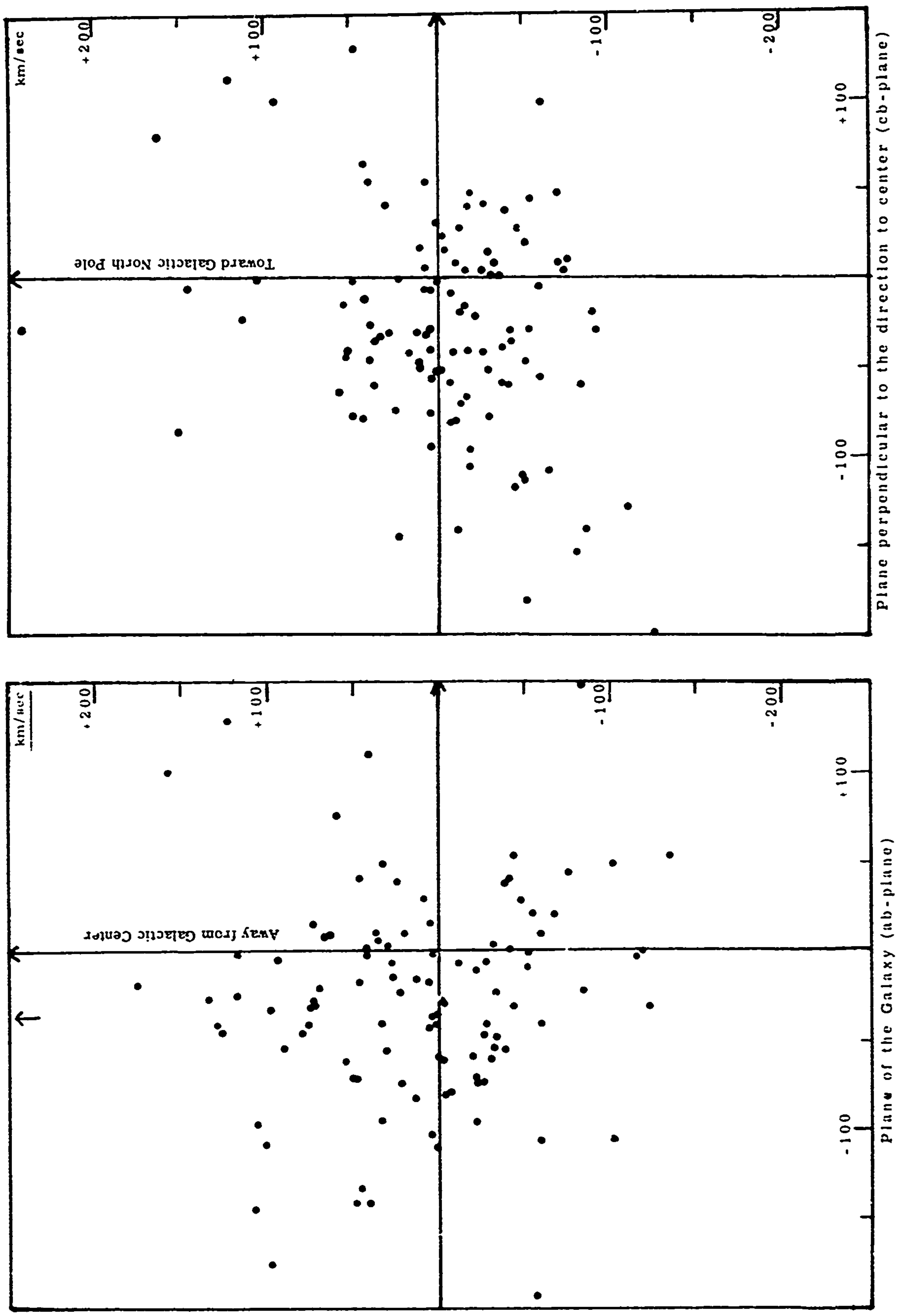
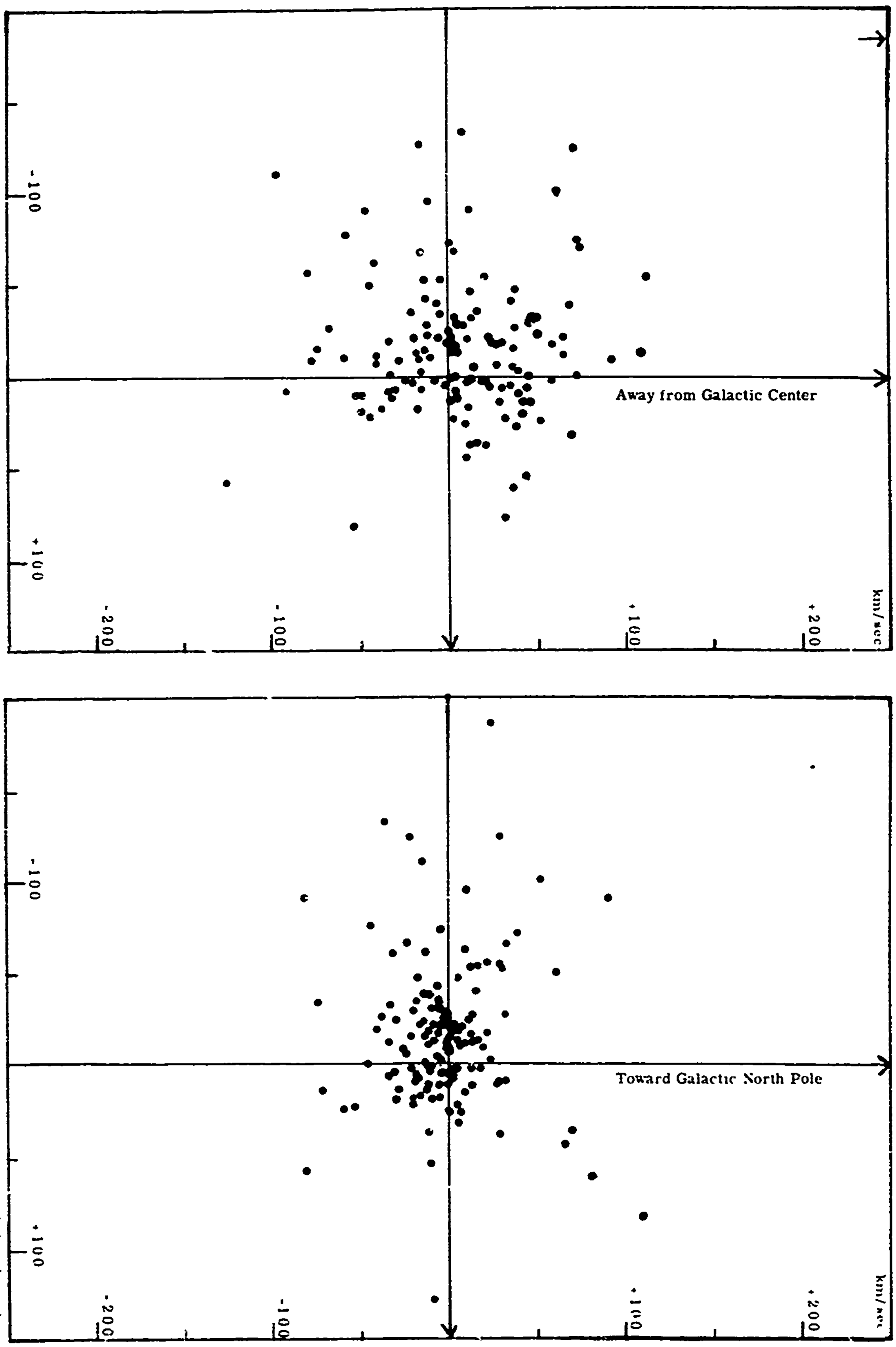


FIGURE 2



Plane of the Galaxy (ab-plane)

Plane perpendicular to the direction to center (cb-plane)

FIGURE 3

MIRA VARIABLES, groups 5, 6, 7, 8. Projection of space velocity vector points. Galactic longitude 58° to the right.

MIRA VARIABLES, group 2. Projection of space velocity vector points. Galactic longitude 58° to the right.

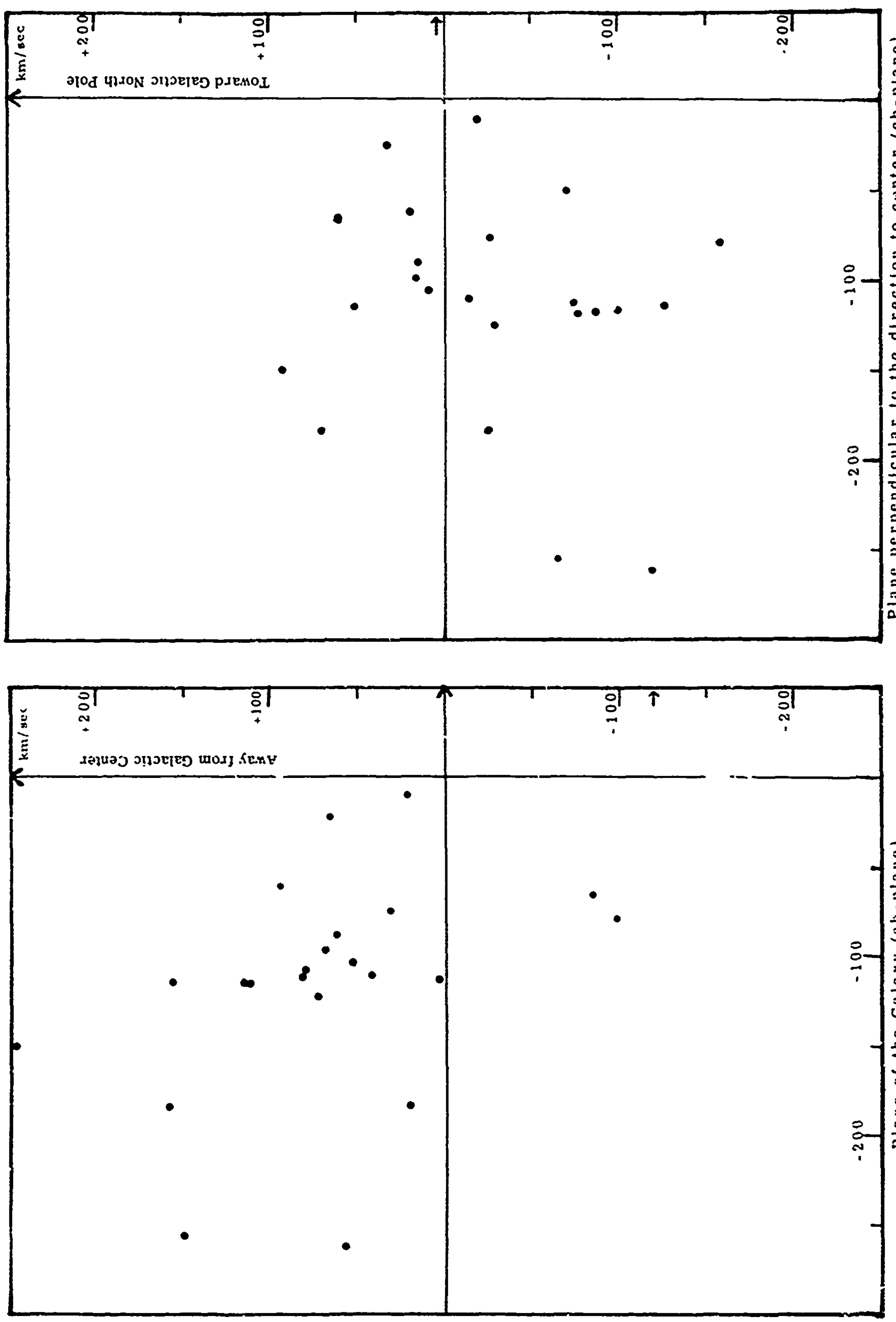


FIGURE 4

MIRA VARIABLES. Carbon stars. Projection of space velocity vector points. Galactic longitude 58° to the right

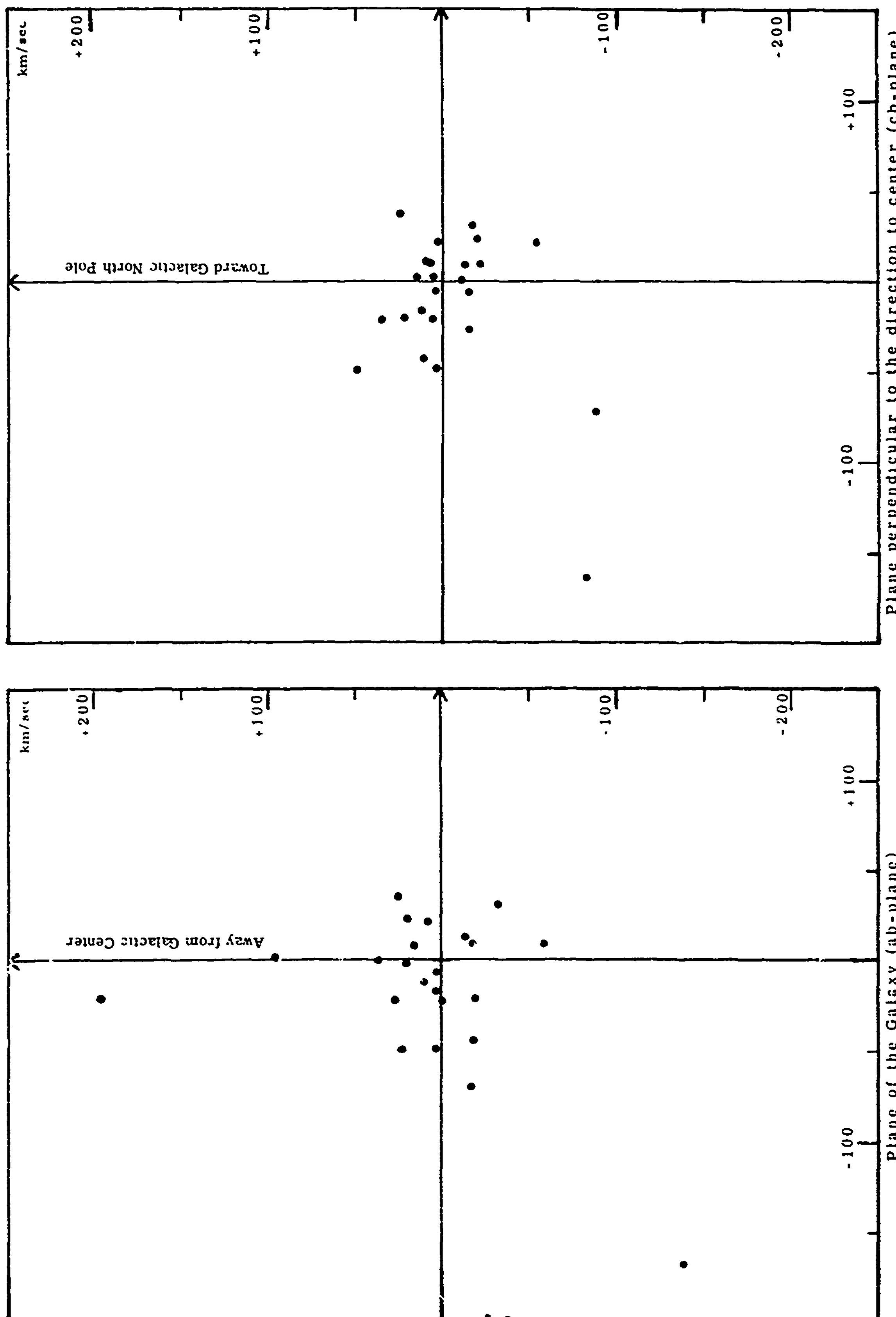


FIGURE 5

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TABLE VI

MAGNITUDE, RADIAL VELOCITY, TANGENTIAL VELOCITY, AND SPACE VELOCITY OF MIRA VARIABLES

(Explanation of Column Headings Follows this Table)

Star	Desig.	m	m'	R	R_ρ	T_α	T_δ	W	$\dot{x}_e$	$\dot{y}_e$	$\dot{z}_e$	a	b	c
GROUP 1 $91^d \leq P \leq 149^d$														
X Cam	043375	8.1	6.8	0	+ 8	- 21	- 45	50.2	+ 36.4	+ 34.4	- 4.0	+ 9.1	+ 22.2	- 32.8
W Pup	074342	8.4	7.1	+ 17	+ 13	+ 42	+ 5	44.2	- 43.4	- 6.5	- 5.0	- 11.7	- 21.9	+ 42.1
R Vir	123307	6.9	6.7	- 25	- 24	- 81	+ 11	85.2	+ 13.2	+ 83.8	+ 7.8	- 15.4	+ 69.1	- 14.5
T Cen	133633	6.1	5.8	+ 28	+ 32	- 36	+ 12	49.7	- 45.2	+ 19.3	- 7.4	- 25.7	- 0.8	+ 38.7
SS Her	162807	9.2	8.5	- 46	- 55	0	- 9	55.8	+ 20.9	+ 49.3	- 15.7	- 13.7	+ 28.4	- 27.0
SY Her	165723	8.0	7.2	+ 13	+ 5	+ 56	- 31	64.2	+ 49.5	- 31.0	- 26.7	+ 28.4	- 45.4	- 44.8
S Aql	200715	9.4	8.3	-113	-129	+ 28	+ 81	154.6	- 52.9	+138.5	+ 44.0	- 45.3	+127.4	+ 50.7
Z Aql	201006	9.6	8.6	- 6	- 22	+ 53	+ 5	57.7	+ 33.3	+ 46.5	+ 7.5	+ 11.0	+ 37.2	- 27.0
R Vul	210023	8.1	7.3	- 12	- 19	- 3	+ 15	24.4	- 18.6	+ 14.5	+ 6.2	- 0.9	+ 4.4	+ 22.7
AM Peg	210512	9.2	8.4	....	....	+ 57	- 33	.....						
RW Aqr	211800	9.5	9.0	....	....	+ 14	- 34	.....						
T Gru	222038	8.6	8.1	+ 1	0	+ 9	-108	108.4	- 56.6	+ 36.4	- 85.0	- 97.0	- 23.0	+ 9.2
RY Cep	231878	9.5	8.1	....	....	+ 43	+ 73	.....						
Z Aqr	234716	8.6	8.4	+ 68	+ 67	+133	-123	193.2	+ 36.8	+131.1	-137.0	-134.4	+ 45.7	-110.0
GROUP 2 $150^d \leq P \leq 199^d$														
TT Peg	000127	9.5	9.0	- 33	- 12	+178	- 83	196.8	+ 25.3	+178.1	- 79.7	-115.9	+116.3	- 77.3
Z Cet	010102	8.9	8.5	+ 3	- 3	-142	+ 16	143.0	+ 35.4	-137.6	+ 16.1	+102.1	-119.3	+ 3.4
U Psc	011712	11.0	10.5	....	....	+142	- 24	.....						
R Ari	021025	8.1	7.6	+114	+127	+121	- 63	186.4	+ 54.2	+178.3	- 4.5	- 48.0	+150.2	- 69.9
R Cet	022101	8.1	7.8	+ 42	+ 39	+ 71	- 59	100.2	- 9.6	+ 80.1	- 59.4	- 74.9	+ 31.7	- 26.7
X Cet	031401	8.8	8.3	+ 59	+ 57	- 79	-182	206.4	+ 93.9	- 12.9	-183.4	- 77.6	- 97.6	-158.9
V Tau	044617	9.2	7.3	+ 78	+ 77	+ 85	- 66	132.4	- 51.3	+115.3	- 40.0	- 96.7	+ 67.8	+ 15.1
RS Aur	055646	9.5	8.5	+ 17	+ 30	- 63	-190	202.5	+ 65.4	+157.2	-109.6	-111.8	+ 82.2	- 27.0
X Aur	060450	8.6	7.6	- 18	- 8	- 16	-153	154.1	+ 13.8	+112.9	-104.0	-111.4	+ 41.8	- 73.5
X Mon	065209	7.5	5.8	+160	+151	- 7	- 55	160.0	- 25.1	+138.6	- 77.7	-122.8	+ 73.3	- 30.3
S Car	100661	5.6	3.6	+289	+291	- 83	+ 52	306.9	- 15.9	+203.3	-229.4	-261.9	+ 58.0	-118.9
S Leo	110606	10.1	9.8	+106	+ 97	-221	- 95	259.5	- 51.6	+239.9	- 84.3	-184.2	+159.2	- 25.7
RS Cen	111661	8.6	6.6	....	....	- 3	- 14	.....						
V CVn	131546	6.8	6.6	- 2	- 1	-146	-146	206.5	-145.9	+104.6	-102.0	-183.8	+ 20.9	+ 69.7
RR Boo	144340	8.7	8.4	- 44	- 49	-111	- 8	121.6	- 48.0	+105.3	- 37.5	- 87.9	+ 61.5	+ 14.4
S Lib	151620	8.4	7.6	+294	+295	- 26	-105	314.2	-178.0	-164.6	-199.8	-149.8	+246.3	+ 92.5
RZ Sco	155924	8.8	8.0	-174	-167	- 68	-149	234.0	+ 48.9	+218.2	- 68.6	-115.3	+156.7	-100.3
S Sco	161223	10.5	9.7	+ 85	+ 97	- 63	- 32	119.9	- 91.2	- 39.9	- 66.8	- 65.3	- 85.3	+ 60.3
SS Oph	165303	8.7	7.1	- 34	- 42	+ 4	- 13	44.2	+ 16.2	+ 39.6	- 11.1	- 7.9	+ 21.5	- 19.5
T Her	180531	8.0	7.5	-122	-138	- 11	+ 58	150.1	- 14.5	+147.9	- 21.4	-108.5	+ 79.6	- 15.0
W Lyr	181237	7.9	7.4	-174	-188	+ 42	+ 47	198.2	+ 33.1	+180.7	- 74.5	-115.7	+111.8	- 87.2
RY Oph	181204	8.2	6.7	- 65	- 77	- 26	+ 29	86.4	- 30.0	+ 77.4	+ 24.0	- 22.1	+ 65.2	+ 31.2
RW Sgr	190819	9.3	8.3	....	....	-126	- 32	.....						
RT Cyg	194149	7.3	5.7	-118	-118	0	+ 52	129.0	- 49.9	+106.0	- 54.0	-102.6	+ 52.7	+ 8.2
RU Vul	203523	9.1	8.3	- 86	-107	+ 47	+ 47	125.8	- 36.2	+120.5	+ 1.7	- 59.8	+ 93.9	+ 19.0
Z Cap	210517	9.5	9.0	- 64	- 89	- 24	- 95	132.3	- 97.9	+ 60.2	- 65.6	-113.4	+ 3.2	+ 51.1
RR Aqr	211003	9.7	9.2	-182	-213	+166	-166	317.1	- 51.5	+272.8	-153.3	-254.7	+149.3	- 65.4
SS Aqr	221415	8.8	8.4	....	....	- 24	-269	.....						
AK Peg	225811	8.8	8.3	....	....	+126	+ 16	.....						

TABLE VI (continued)

Star	Desig.	m	m'	R	R_p	T_α	T_δ	W	$\dot{x}_e$	$\dot{y}_e$	$\dot{z}_e$	a	b	c
						GROUP 3 $200^d \leqslant P \leqslant 249^d$								
S Tuc	001862	9.3	9.0	....	....	0	+ 8	.....						
YZ And	002230	10.0	9.4	....	....	+133	- 95	.....						
RU And	013338	10.4	9.8	- 43	- 5	- 47	+ 47	66.6	- 11.9	- 56.2	+ 33.8	+ 54.2	- 44.2	+ 42.2
Y And	013439	9.1	8.5	- 7	+ 12	- 30	- 77	83.5	+ 64.6	- 4.5	- 52.5	+ 3.9	- 30.5	- 74.8
S Tri	022132	9.1	8.5	....	....	- 24	- 47	.....						
U Cet	022914	7.5	7.2	- 27	- 28	+ 51	- 51	77.4	- 62.1	+ 16.9	- 43.0	- 59.6	- 20.9	+ 37.4
T Hor	025851	8.2	7.9	....	....	+ 71	+ 81	.....						
R Per	032435	8.7	6.8	- 78	- 72	- 31	- 39	87.5	+ 1.2	- 47.7	- 73.4	- 22.1	- 85.9	- 22.6
T Col	051634	7.5	7.2	+ 67	+ 58	+ 88	+ 37	111.6	- 73.0	+ 84.4	- 1.6	- 63.7	+ 56.7	+ 56.6
Y Mon	065111	9.1	7.8	+ 71	+ 58	- 9	- 81	100.0	- 7.4	+ 73.0	- 68.0	- 77.6	+ 22.1	- 22.9
ST Gem	073335	9.1	8.7	....	....	+129	-169	.....						
X UMa	083450	9.7	9.3	- 83	- 74	- 66	-161	189.1	+ 3.8	+101.5	-159.5	-153.0	+ 4.5	- 88.7
S Pyx	090125	9.0	8.3	+100	+ 88	+ 30	- 6	93.2	- 76.1	+ 33.3	- 42.3	- 72.5	- 2.6	+ 48.2
RS Leo	093820	10.4	10.1	...	....	-114	+104	.....						
S LMi	094835	8.6	8.2	- 2	- 4	+ 42	+ 26	49.6	- 7.6	- 45.2	+ 18.9	+ 40.9	- 41.6	+ 28.4
W Cen	115059	8.5	6.2	....	....	- 78	+ 6	.....						
SU Vir	120013	9.4	9.2	+ 22	+ 22	-142	+ 66	158.2	- 6.7	+142.0	+ 69.3	- 6.2	+146.6	+ 22.4
Y Vir	122904	9.4	9.0	+ 9	+ 16	-190	-119	224.8	- 31.7	+187.5	-119.9	-179.7	+ 95.5	- 52.3
S UMa*	124062	7.8	7.5	+ 8	+ 12	- 40	+ 16	44.7	+ 1.4	+ 40.8	+ 18.2	+ 6.3	+ 34.7	+ 6.7
U Vir	124606	8.2	8.0	- 46	- 44	- 47	+ 5	64.6	- 54.0	+ 54.9	+ 0.3	+ 2.0	+ 11.9	- 32.1
R Boo	143327	7.2	6.9	- 58	- 60	- 98	+ 65	132.0	+ 4.7	+128.3	+ 30.5	- 23.9	+117.4	- 3.3
U Boo	145018	10.4	10.1	+ 19	+ 11	- 71	+225	236.4	- 3.8	+ 92.6	+217.4	+128.7	+172.7	- 98.3
RS Lib	151823	7.5	6.7	- 5	0	+ 89	- 33	95.0	- 76.0	- 48.1	- 30.5	+ 44.8	- 75.0	- 53.9
U Lib	153621	9.6	8.8	+ 95	+103	+ 81	+ 14	131.7	+ 6.2	-129.4	- 23.6	+ 53.1	-134.3	+ 8.2
X CrB	154537	9.1	8.9	-104	-115	-111	- 32	163.0	- 51.7	+122.5	- 94.2	-141.1	+ 48.3	- 11.1
R Lup	154736	10.1	9.2	....	....	+ 76	+ 19	.....						
R Lib	154816	10.3	9.5	+ 14	+ 19	+171	+ 38	176.3	+127.8	-117.3	- 31.4	+148.8	- 86.6	- 71.4
U Ser	160210	8.5	8.1	- 31	- 40	- 58	+195	207.3	- 14.2	+ 92.8	+184.8	+ 99.1	+157.4	+ 90.2
X Sco	160321	11.0	9.7	....	....	+ 24	-107	.....						
R Sco	161223	10.4	9.2	0	+ 7	+ 57	- 9	58.1	- 49.4	- 28.5	- 11.0	- 38.5	- 35.3	- 37.9
W CrB	161238	8.5	8.1	+ 20	+ 11	- 58	+ 11	60.1	- 52.5	+ 24.7	- 15.5	- 14.6	+ 14.2	+ 55.1
S Oph	162817	9.5	7.9	- 9	- 9	- 38	- 28	46.0	- 28.5	+ 30.2	- 24.2	- 35.3	+ 2.4	- 15.1
R Dra	163267	7.6	7.2	-133	-131	- 54	+ 58	153.1	- 11.1	+117.2	- 97.8	-121.3	+ 46.0	- 49.0
RV Her	165731	10.1	9.5	- 40	- 63	- 47	0	78.6	- 30.5	+ 64.6	- 32.8	- 57.2	+ 30.7	+ 7.3
RS Her	171823	7.9	7.1	- 41	- 51	- 85	- 17	100.5	- 76.2	+ 55.2	- 35.5	- 78.5	+ 14.0	+ 47.2
RU Oph	172809	9.3	8.5	- 65	- 83	-136	- 24	161.0	-123.8	+ 96.0	- 37.4	- 98.2	+106.5	- 19.3
U Ara	174652	8.4	7.4	....	....	- 29	- 36	.....						
RY Her	175519	9.0	8.2	- 39	- 57	+ 37	+ 21	71.2	+ 38.2	+ 60.1	+ 0.8	+ 2.2	+ 47.2	- 36.0
R Pav	180364	8.5	7.7	....	....	- 90	+ 78	.....						
SV Her	182225	9.8	9.3	- 23	- 55	+ 9	- 66	86.4	+ 6.9	+ 22.8	- 83.0	- 59.0	- 28.3	- 42.4
S Sgr	191419	10.2	9.2	+ 35	+ 15	- 28	-246	247.9	+ 5.5	+ 72.2	-237.1	-196.9	- 57.6	-121.8
RV Aql	193610	9.3	8.3	- 74	- 96	+ 24	- 30	103.5	- 14.5	+ 91.7	- 45.8	- 72.5	+ 48.1	- 16.8
TU Cyg	194349	9.4	7.8	- 80	- 84	- 19	- 19	88.2	- 35.0	+ 28.5	- 75.8	- 75.8	- 23.5	- 3.3
V Aqr	204202	8.3	7.8	- 44	- 58	0	+ 38	69.3	- 38.5	+ 45.1	+ 35.9	- 1.9	+ 42.7	+ 49.5
T Aqr	204506	7.8	7.3	- 39	- 49	- 55	- 33	80.7	- 75.6	+ 2.9	- 28.1	- 48.9	- 27.9	+ 57.8
RS Aqr	210504	10.2	9.7	....	....	+ 47	- 24	.....						
X Peg	211614	9.4	8.6	- 56	- 71	- 20	- 47	87.4	- 56.5	+ 22.5	- 62.8	- 74.3	- 24.7	+ 22.6
S Mic	212130	9.0	8.5	+ 49	+ 43	-101	- 53	121.8	- 56.5	- 84.2	- 67.5	- 30.0	-120.3	+ 37.4
RT Peg	220035	9.9	9.1	-116	-117	+142	+ 8	183.6	- 6.3	+173.5	- 59.9	-116.8	+112.8	- 44.7
Y Peg	220714	10.5	10.0	- 85	-100	-154	+154	239.5	-190.9	- 71.9	+125.5	- 24.3	- 33.1	+241.8
RT Aqr	221823	9.1	8.7	- 34	- 41	+359	- 14	361.6	+116.1	+342.5	+ 2.6	- 86.4	-306.1	+153.0
S Lac	222540	8.2	7.4	- 60	- 57	- 4	- 15	59.0	- 32.9	+ 10.1	- 48.0	- 46.1	- 27.0	+ 10.0
R Ind	222968	8.4	8.0	....	....	+ 9	+ 52	....						
RW Peg	225915	9.7	9.3	- 76	- 76	0	- 19	78.3	- 66.2	+ 17.9	- 37.8	- 58.4	- 18.2	+ 42.7
V Cas	230759	7.9	6.8	- 30	- 23	+ 59	- 31	70.5	+ 27.9	+ 54.1	- 35.6	- 27.5	+ 24.1	- 43.1

TABLE VI (continued)

Star	Desig.	m	m'	R	R_p	T_α	T_δ	W	$\dot{x}_e$	$\dot{y}_e$	$\dot{z}_e$	a	b	c
GROUP 4 $250^d \leqslant P \leqslant 299^d$														
RV Cep	000873	9.7	8.1	....	....	0	+ 11	.....	- 96.0	- 45.3	+ 19.9	- 0.7	- 50.6	+105.3
T And	001726	8.5	7.9	- 90	- 80	- 38	+ 62	108.0						
U Cas*	004148	8.4	7.4	- 45	- 33	- 26	- 22	47.4	- 1.2	- 26.6	- 39.2	- 7.6	- 51.8	- 7.2
V And	004535	9.4	8.8	+ 16	+ 35	0	- 68	76.5	+ 66.5	+ 13.2	- 35.5	+ 9.8	- 8.6	- 70.6
RX Psc	012021	9.5	8.9	....	....	0	- 61	.....						
S Ari	015912	10.8	10.2	- 27	- 8	+ 12	- 83	84.3	+ 2.2	+ 15.1	- 82.9	- 57.7	- 34.5	- 37.5
Z Cep	021381	10.8	9.2	....	....	+ 55	- 79	.....						
R Tri	023134	6.2	5.7	+ 67	+ 72	+ 37	- 22	84.0	+ 34.4	+ 73.4	+ 21.8	+ 8.8	+ 68.1	- 26.6
T Eri	035124	8.0	7.7	+ 42	+ 35	+ 99	+ 47	115.2	- 56.5	+ 96.3	+ 28.4	- 40.8	+ 82.2	+ 52.8
R Ret	043263	7.6	7.1	+ 26	+ 27	+ 51	+ 82	100.2	- 15.5	+ 98.2	+ 12.8	- 32.1	+ 80.9	+ 11.1
V Ori	050104	3.4	8.6	+ 22	+ 20	- 14	+ 20	26.4	+ 15.6	+ 4.7	+ 20.7	+ 31.2	+ 5.5	+ 1.3
W Aur	052037	9.2	7.3	-132	-128	+ 3	- 37	133.4	- 17.0	- 78.7	-106.3	- 41.1	-130.8	- 17.3
S Lyn	063658	9.6	8.9	- 11	+ 4	- 47	0	47.2	+ 46.1	+ 9.4	+ 3.4	+ 3.7	+ 31.0	- 17.0
X Gem	064130	8.2	7.0	+ 75	+ 73	0	- 56	92.0	- 16.2	+ 89.9	+ 11.4	- 30.0	+ 72.7	+ 12.3
V Gem	071813	8.5	7.8	+ 22	+ 10	- 34	- 52	63.0	+ 24.9	+ 31.8	- 48.3	- 28.7	- 2.2	- 43.1
S Gem	073724	9.0	8.6	+111	+ 99	- 41	- 54	120.1	- 8.7	+119.4	- 9.7	- 54.7	+ 90.2	- 8.7
T Gem*	074324	8.7	8.3	+ 22	+ 12	[illegible]	58	62.9	+ 3.8	+ 40.3	- 48.1	- 42.1	+ 3.2	- 26.5
V Cnc*	081618	7.9	7.5	- 1	- 10	- [illegible]	+ 16	69.5	+ 63.5	+ 25.6	+ 12.2	+ 38.3	+ 24.9	- 47.3
RT Hya	082506	7.4	6.8	+ 40	+ 31	+ 50	-153	164.0	- 49.3	- 17.5	+155.4	+110.8	+ 43.7	+123.9
S Hya	084803	7.8	7.4	+ 74	+ 64	- 26	+ 47	83.5	- 21.7	+ 62.7	+ 50.7	+ 8.9	+ 67.1	+ 38.5
T Hya	085109	7.8	7.2	- 3	- 13	- 27	+ 10	31.6	+ 27.5	+ 10.0	+ 11.9	+ 27.9	+ 7.3	- 14.0
V Leo	095422	9.1	8.8	- 23	- 32	+ 47	-142	153.0	- 44.1	- 28.2	-143.7	-105.5	-106.9	- 18.0
S Sex	103000	9.1	8.7	- 5	- 13	- 95	- 74	121.2	+ 48.3	+ 82.9	- 74.0	- 58.6	+ 33.2	- 84.2
RZ Car	103370	10.0	8.4	....	....	- 30	0	.....						
T CVn	122532	9.6	9.4	....	....	+228	-133	.....						
T UMa	123260	7.7	7.4	- 91	- 95	- 73	- 55	131.8	- 19.2	+ 72.3	-109.8	-109.7	+ 0.7	- 47.7
RS UMa	123459	9.0	8.7	- 26	- 20	-176	- 74	192.0	- 79.0	+166.1	- 55.3	-144.6	+102.6	+ 22.6
RV Vir	130313	10.8	10.5	+ 33	+ 59	- 32	+174	186.5	-100.8	- 4.9	+156.9	+ 76.9	+ 59.3	+165.8
RT Cen	134236	9.0	8.5	....	....	- 18	- 89	.....						
Z Boo	140214	9.3	9.0	+ 40	+ 40	- 63	+ 8	75.0	- 63.6	+ 35.7	+ 17.4	- 23.2	+ 23.6	+ 64.2
S Boo	142054	8.4	8.1	- 17	- 16	+ 63	- 84	106.3	- 12.2	- 85.4	- 62.1	- 2.7	-115.2	+ 0.3
R Cam*	142584	8.3	7.6	- 33	- 24	- 32	- 4	40.2	- 20.2	+ 24.8	- 24.3	- 29.0	- 1.5	+ 8.0
V Boo	142639	7.8	7.6	- 36	- 40	+115	- 32	125.9	+ 76.9	- 86.2	- 50.1	- 47.8	-103.0	- 69.9
V Lib	143517	9.7	9.3	+ 15	+ 31	- 66	+ 19	75.4	- 68.8	+ 29.5	- 8.9	- 42.8	+ 5.4	+ 57.3
RT Lib	150118	9.0	8.2	+ 41	+ 49	- 21	- 21	57.2	- 43.0	- 13.5	- 35.3	- 31.3	- 42.2	+ 28.2
Y Lib	150606	8.6	8.2	- 7	- 5	- 53	- 74	91.1	- 30.1	+ 45.3	- 73.1	- 79.4	- 6.7	- 9.9
RR Lib	155118	8.6	7.8	- 33	- 30	+ 43	- 26	58.5	+ 55.9	+ 7.9	- 15.4	+ 22.4	- 4.6	- 51.1
Z CrB	155230	10.0	9.6	- 81	- 97	-180	+370	422.8	- 11.3	+321.7	+274.1	+ 67.8	+399.7	+ 93.8
W Her	163238	8.3	7.9	- 51	- 60	- 33	+109	128.8	+ 12.3	+118.1	+ 49.8	- 1.0	+116.3	- 0.3
RR Oph	164319	8.9	7.4	+ 60	+ 60	- 4	- 36	70.2	- 18.6	- 41.0	- 53.8	- 40.2	- 58.4	+ 3.5
RR Sco	165030	5.9	4.4	- 36	- 35	- 16	- 14	41.0	- 4	+ 40.4	+ 5.6	- 5.8	+ 27.9	+ 5.9
RT Her	170727	9.4	8.6	- 66	- 84	+ 14	- 68	109.0	+ 23.7	+ 39.2	- 98.9	- 70.2	- 19.7	- 67.0
V Dra	175655	9.9	9.1	+ 13	+ 7	0	+ 16	17.5	+ 0.1	9.1	+ 14.9	+ 17.2	+ 5.2	+ 11.3
W Dra	180666	9.6	8.8	- 21	- 17	- 34	+115	121.1	- 36.7	+111.1	+ 31.4	- 33.8	+ 99.1	+ 35.2
SV Dra	183149	9.7	8.0	+ 22	+ 15	+ 47	+ 38	62.2	+ 44.0	+ 25.1	+ 36.2	+ 47.5	+ 33.1	- 19.4
RS Dra	184074	9.1	8.7	- 29	- 19	- 7	- 7	21.4	- 6.6	- 2.7	- 20.2	- 6.9	- 22.2	+ 2.6
Z Lyr	185635	10.1	9.7	+ 5	- 21	+ 47	- 47	69.7	+ 47.9	+ 2.1	- 50.6	- 5.0	- [illegible]	- 60.0
RT Lyr	185837	10.1	9.7	- 94	-117	+133	+114	210.7	+ 88.1	+190.4	+ 19.6	- 19.2	+175.6	- 89.8
R Sgr	191119	7.3	6.4	- 45	- 50	+ 25	- 23	60.6	+ 7.1	+ 59.9	- 5.7	- 17.9	+ 40.9	- 11.8
BG Cyg	193528	9.4	7.6	....	....	+ 28	- 8	.....						
Z Cyg	195950	8.7	7.2	-166	-168	+ 71	- 7	182.4	+ 10.5	+124.7	-132.7	-140.1	+ 39.0	- 85.3
RU Aql	200813	9.3	8.6	+ 20	- 3	+ 54	+ 41	67.8	+ 39.4	+ 38.8	+ 39.3	+ 41.3	+ 16.3	- 16.2
R Del	201009	[illegible]	7.5	- 46	- 60	- 8	- 36	70.4	- 35.5	+ 41.1	- 44.8	- 59.0	+ 2.4	+ 9.6
S Del	203817	8.8	8.0	- 13	- 27	+ 81	+ 38	93.4	+ 38.9	+ 80.0	- 28.6	+ 14.8	+ 77.3	- 27.6
RZ Cyg	204847	10.3	8.0	- 47	- 49	+ 43	- 24	69.6	+ 21.3	+ [illegible]	- 52.2	- 37.1	+ 3.8	- 43.3

TABLE VI (continued)

Star	Desig.	m	m'	R	R_p	T_α	T_δ	W	$\dot{x}_e$	$\dot{y}_e$	$\dot{z}_e$	a	b	c
GROUP 4 $250^d \leqslant P \leqslant 299^d$ (continued)														
X Del	205017	9.0	8.2	- 57	- 71	+ 90	0	114.6	+ 20.3	+110.8	- 21.1	- 45.7	+ 79.7	- 38.9
RR Cap	205627	9.3	8.8	- 63	- 72	+142	- 27	161.5	+ 48.9	+153.6	+ 9.4	- 28.5	+134.8	- 54.6
R Equ	2108$\overline{12}$	9.3	8.5	- 54	- 69	+ 12	- 59	91.6	- 31.9	+ 46.1	- 72.4	- 80.2	- 6.6	- 8.4
T Cap	211616	9.5	9.0	+ 42	+ 26	+ 16	-142	145.2	+ 0.6	+ 20.7	-145.7	-106.7	- 59.4	- 64.5
RR Peg	2140$\overline{25}$	9.2	8.4	- 30	- 38	0	- 41	55.9	- 14.4	+ 10.0	- 53.1	- 41.0	- 27.4	- 7.6
S PsA	215829	9.2	8.8	....	....	+115	- 34	.....						
S Aqr	2252$\overline{21}$	8.2	7.8	- 58	- 61	+ 39	- 30	78.4	- 53.3	+ 57.1	- 6.3	- 46.1	+ 32.6	+ 40.3
UZ Cep	2305$\overline{70}$	9.9	7.2	....	....	+ 41	+ 3	.....						
R Phe	235150	8.0	7.9	+ 23	+ 26	- 57	- 9	63.2	+ 7.5	- 57.2	- 25.7	+ 21.0	- 71.3	- 4.0
V Cet	2353$\overline{10}$	9.4	9.3	+ 51	+ 51	- 76	- 76	118.8	+ 35.3	- 77.1	- 93.3	- 0.7	-113.1	- 51.7
GROUP 5 $300^d \leqslant P \leqslant 349^d$														
S Cet	001910	8.2	8.0	+ 33	+ 34	+ 80	+ 21	89.6	+ 30.4	+ 22.9	+ 14.9	- 1.4	+ 73.0	- 26.2
Y Cep	0031$\overline{80}$	9.6	8.5	0	+ 11	+ 51	- 44	68.2	+ 37.9	+ 56.7	+ 3.0	+ 5.4	+ 45.2	- 34.2
RR And*	004634	8.9	8.4	- 71	- 67	- 3	- 54	82.3	- 20.4	- 7.1	- 79.4	- 63.1	- 42.4	- 12.6
RV Cas	004747	9.4	8.6	- 67	- 54	+ 51	- 12	75.2	- 38.0	+ 44.1	- 47.6	- 63.8	+ 3.2	+ 9.8
U And	011040	10.0	9.6	- 4	+ 15	+341	- 18	344.8	- 81.2	+225.1	- 4.1	-182.4	+275.7	+ 23.9
UZ And	011041	10.3	9.8	- 39	- 17	+115	+ 7	116.4	- 51.4	+104.3	- 5.9	- 65.7	+ 74.5	+ 32.1
R Psc	012602	8.2	7.3	- 45	- 42	+ 39	- 37	68.2	- 51.5	+ 21.6	38.7	- 53.7	- 14.3	+ 29.2
U Per	015354	8.2	7.4	+ 17	+ 25	+ 67	- 19	74.0	- 5.2	+ 73.2	+ 9.2	- 18.7	+ 58.3	+ 3.3
o Cet	021403	3.4	3.1	+ 64	+ 64	+ 2	- 67	92.7	+ 49.8	+ 35.5	- 69.6	- 34.5	- 5.9	- 75.2
T Ari	0243$\overline{17}$	8.6	8.1	+ 7	+ 12	- 56	- 41	70.4	+ 54.3	- 27.0	- 35.7	+ 22.3	- 45.1	- 53.8
R Tau	042310	8.6	7.8	+ 32	- 30	- 18	- 3	35.2	+ 28.8	+ 20.0	+ 2.2	+ 16.8	+ 11.8	- 21.1
RX Tau	043308	9.6	8.3	- 22	- 26	- 4	108	111.2	- 0.2	- 11.3	-110.6	- 76.5	- 57.8	- 44.6
S Col	0543$\overline{32}$	9.3	9.9	+ 73	+ 60	- 71	+ 28	97.1	+ 75.6	+ 60.4	- 7.6	+ 13.2	+ 47.2	- 72.7
V Mon	0618$\overline{02}$	7.0	6.4	+ 30	+ 25	+ 15	- 10	36.8	- 16.9	+ 23.3	- 10.9	- 16.7	+ 3.9	+ 11.8
S CMi	0727$\overline{09}$	7.5	7.2	+ 68	+ 62	- 32	- 16	71.5	+ 6.0	+ 71.0	- 5.6	- 24.2	+ 49.7	- 13.8
T CMi	072812	10.5	10.2	+ 35	+ 12	+ 79	- 40	89.3	- 80.7	- 11.2	- 35.6	- 50.8	- 45.0	- 60.9
U Cnc	083019	9.9	9.6	+ 72	+ 59	+ 6	- 47	75.7	- 48.1	+ 52.8	- 25.0	- 55.9	- 19.6	+ 28.0
RW Car	091868	9.3	8.4	....	....	- 61	+ 20	.....						
X Hya	0931$\overline{1[illegible]}$	8.4	8.1	+ 42	+ 36	-148	- 12	152.8	- 64.4	+137.0	- 20.5	+ 57.1	-125.9	- 81.7
Y Dra	0931$\overline{78}$	9.2	8.6	+ 23	+ 33	- 91	- 99	138.4	- 27.3	+135.1	+ 12.2	- 54.6	+112.1	+ 15.6
RR Hya	0940$\overline{24}$	9.3	8.7	+ 47	+ 42	- 32	- 12	54.1	9.3	+ 45.5	- 27.8	- 35.9	+ 15.7	- 6.3
R Leo	0942$\overline{12}$	5.8	5.5	+ 13	+ 11	+ 6	- 32	34.3	- 17.7	+ 4.8	- 29.0	- 22.2	- 21.0	+ 7.1
R UMa	103069	7.5	7.2	+ 34	+ 38	- 55	- 16	68.7	- 7.1	+ 61.5	+ 29.9	+ 0.7	57.4	+ 16.6
X Cen	1144$\overline{41}$	8.0	7.6	+ 38	+ 43	- 9	+ 14	46.2	- 40.9	+ 11.8	- 17.8	- 28.4	11.8	+ 31.1
T Vir	1210$\overline{05}$	9.6	9.2	+ 22	+ 45	+ 5	+ 63	68.3	- 31.6	- 6.4	+ 60.2	+ 42.9	+ 9.9	+ 62.5
R Crv	1214$\overline{19}$	7.5	7.1	- 22	- 19	- 11	- 8	23.4	+ 19.9	+ 12.3	- 1.5	+ 13.2	+ 2.2	- 13.9
T UMi	133374	9.2	8.9	- 3	+ 4	- 47	- 4	47.4	- 23.0	+ 41.3	+ 2.7	- 17.6	+ 25.7	+ 20.5
R CVn	134540	7.7	7.5	- 6	- 6	- 32	+ 23	39.8	+ 3.3	+ 37.2	+ 13.7	+ 5.4	+ 29.6	+ 3.8
RX Cen	1346$\overline{56}$	9.4	9.0	- 1	+ 14	- 57	-123	136.2	+ 29.9	+ 78.6	-107.2	- 91.8	+ 11.9	- 81.5
Z Vir	1405$\overline{13}$	10.4	10.1	+ 68	+ 81	- 79	- 79	138.0	- 93.6	+ 35.6	- 95.0	-125.9	- 15.9	+ 27.5
RU Hya	1406$\overline{28}$	8.4	7.6	+ 2	+ 8	+ 12	- 59	60.7	+ 24.3	+ 0.7	- 55.7	- 20.3	- 32.8	- 41.3
U UMi	141567	8.2	7.9	- 26	- 23	- 31	+ 42	57.0	+ 22.4	+ 52.2	- 4.9	- 6.3	+ 35.6	- 24.3
RU Lib	1528$\overline{15}$	8.1	7.4	- 47	- 45	- 24	- 4	51.1	+ 8.5	+ 49.8	- 7.7	- 2.7	+ 38.3	- 5.6
S UMi	1534$\overline{79}$	8.4	8.0	- 40	- 35	-133	+ 27	140.3	- 87.0	+106.1	- 20.2	-102.3	+ 60.5	+ 51.6
R Her	160219	8.8	8.4	- 30	- 36	- 27	0	45.0	- 6.7	+ 43.0	- 11.5	- 21.3	+ 21.7	- 0.4
R UMi	163172	9.1	8.8	- 22	- 17	+ 43	+ 78	90.7	+ 69.6	+ 57.4	+ 7.3	+ 23.1	+ 50.7	- 60.4
S Her	164715	7.6	6.9	- 10	- 14	+ 26	+ 25	38.6	+ 30.9	+ 10.9	+ 20.4	- 35.7	+ 12.4	- 12.8
RS Sco	1648$\overline{45}$	7.0	1.0	+ 7	+ 7	+ 2	3	7.8	+ 1.1	- 3.3	- 7.0	+ 7.0	- 15.8	+ 2.1
R Oph	1702$\overline{16}$	7.6	6.8	- 47	- 48	- 43	26	69.4	- 28.3	+ 52.3	- 11.8	- 40.9	- 36.2	+ 15.0
Z Oph	1714$\overline{02}$	8.1	6.8	- 78	- 82	- 12	+ 7	83.2	+ 4.4	+ 83.0	+ 4.7	- 21.8	- 65.5	- 8.5

TABLE VI (continued)

GROUP 5 $300^d \leqslant P \leqslant 349^d$ (continued)

Star	Desig.	m	m'	R	R_ρ	T_α	T_δ	W	$\dot{x}_e$	$\dot{y}_e$	$\dot{z}_e$	a	b	c
TV Her	181132	9.7	9.3	- 66	- 82	- 53	- 42	106.3	- 55.2	+ 45.0	- 78.9	- 96.0	- 11.7	+ 9.6
RV Sgr	182133	7.8	6.3	+ 24	+ 24	+ 16	- 11	30.9	+ 17.2	- 12.5	- 22.4	+ 7.4	- 29.5	- 17.8
T Ser	$1824\overline{06}$	9.7	8.7	+ 4	- 10	- 4	+ 12	16.1	- 5.1	+ 10.8	+ 10.8	+ 10.9	+ 4.3	+ 13.7
RZ Her	183326	9.5	9.1	+ 38	+ 22	- 24	- 62	70.1	- 17.2	- 49.9	- 45.1	- 10.3	- 76.8	+ 7.1
X Oph	183409	6.8	6.0	- 71	- 75	+ 8	- 22	78.5	- 2.4	+ 71.2	- 23.1	- 47.8	+ 37.2	- 18.4
RY Lyr	184135	9.8	9.4	- 19	- 34	+ 11	- 11	37.4	+ 6.9	+ 23.4	- 28.4	- 18.3	- 2.2	- 17.1
R Aql	190268	6.2	4.7	+ 32	+ 30	0	- 36	46.9	+ 9.3	- 33.5	- 31.4	- 32.9	+ 4.2	- 6.2
TY Lyr	190628	9.7	8.5	....	....	+ 15	+ 11	.....						
RX Sgr	190919	9.7	9.0	- 23	- 33	- 38	+ 52	72.3	- 40.5	+ 2.5	+ 59.9	+ 34.9	+ 16.7	+ 68.5
RS Lyr	$1909\overline{33}$	10.2	9.0	- 18	- 31	- 5	- 9	32.6	- 11 0	+ 18.5	- 24.5	- 21.9	- 5.9	+ 1.4
U Dra	191067	9.5	8.5	0	+ 3	- 29	- 18	34.2	- 22.3	- 25.6	- 4.2	+ 7.9	- 36.3	+ 27.4
RT Aql	193311	8.7	8.2	- 41	- 53	+ 51	- 16	75.3	+ 27.5	+ 65.0	- 26.2	- 26.8	+ 37.6	- 39.4
X Aql	194604	9.1	8.4	+ 24	+ 12	+ 3	- 30	32.4	+ 9.1	- 11.4	- 29.0	- 2.0	- 52.7	- 13.6
RR Sgr	195029	6.8	6.3	+ 85	+ 83	- 20	- 14	86.6	+ 12.4	- 67.3	- 53.0	+ 7.3	- 92.5	- 19.4
S Cyg*	$2003\overline{58}$	10.3	9.3	- 17	- 16	+ 26	+ 16	34.4	+ 11.0	+ 32.2	- 5.0	+ 1.9	+ 19.1	- 10.8
SZ Cep*	201377	9.6	8.6	....	....	+ 55	- 67	.....						
U Mic	202341	8.8	8.3	...	....	+ 17	- 54	.....						
RU Cap	$2027\overline{22}$	9.7	9.2	....	....	+ 47	- 79	.....						
Z Del*	$2028\overline{17}$	8.8	8.1	+ 34	+ 25	0	- 27	36.7	+ 19.2	- 25.4	- 18.4	+ 17.4	- 38.6	- 15.7
ST Cyg	203055	9.9	8.5	- 14	- 13	+ 22	- 15	29.6	+ 20.3	+ 9.7	- 19.3	+ 1.2	- 8.4	- 22.3
T Del	204116	9.3	8.6	- 10	- 21	+ 4	+ 32	38.5	- 15.6	+ 24.8	+ 25.0	+ 10.2	+ 22.1	+ 27.4
TW Cyg	210229	10.0	9.2	....	....	+ 32	- 32	.....						
TU Peg	214012	8.9	8.5	....	....	+ 18	- 62	.....						
R Gru	$2142\overline{47}$	8.3	7.9	....	....	+ 56	- 25	.....						
WY Cyg	$2145\overline{44}$	8.6	8.0	....	....	+ 74	0	....						
V Peg	215606	8.7	8.3	- 25	- 31	+ 64	- 14	72.4	+ 7.8	+ 70.0	- 16.9	- 29.5	+ 44.9	- 20.0
R Lac	223942	9.1	8.4	+ 18	+ 22	+ 37	+ 27	50.7	+ 11.3	+ 35 2	+ 34.8	+ 25.9	- 38.4	- 6.8
SZ And	225542	10.6	10.0	....	....	+ 47	- 20	.....						
W Peg	231526	8.2	7.8	- 21	- 19	+ 32	- 11	38.8	- 5.8	+ 33.9	- 18.1	- 21.5	+ 10.8	- 2.8
S Peg	231608	8.0	7.6	+ 5	+ 5	- 26	- 73	77.7	+ 10.3	- 28.5	- 71.5	- 25.8	- 57.4	- 31.7
RR Cas	235153	10.5	9.8	- 46	- 26	+ 41	- 14	50.6	- 2.8	+ 41.2	- 29.2	- 31.7	+ 12.5	- 11.4
Z Peg	235525	8.4	8.0	- 31	- 26	+ 27	- 39	54.1	- 6.2	+ 27.1	- 46.4	- 39.9	- 8.0	- 14.4
SV And	235940	8.7	8.2	- 87	- 79	+ 41	+ 9	89.4	- 66.4	+ 41.2	- 43.4	- 73.3	- 1.0	+ 36.5

GROUP 6 $350^d < P \leqslant 393^d$

Star	Desig.	m	m'	R	R_ρ	T_α	T_δ	W	$\dot{x}_e$	$\dot{y}_e$	$\dot{z}_e$	a	b	c
S Scl	001033	6.7	6.5	+ 35	+ 35	+ 67	+ 14	76.7	+ 33.9	+ 68.5	- 7.1	- 0.5	+ 45.3	- 46.4
X Psc	$0107\overline{22}$	9.2	8.7	+ 11	+ 20	+ 90	- 17	93.7	- 2.0	+ 93.3	- 8.4	- 38.7	+ 68.5	- 10.4
RZ Per*	012450	9.4	8.7	- 10	+ 5	+ 26	- 17	31.5	+ 5.9	+ 30.1	- 7.0	- 5.9	+ 14.1	- 6.9
W And	021144	7.4	6.7	- 29	- 23	+ 12	- 3	26 1	- 18.7	- 2.2	- 18.1	- 13.4	- 18.4	+ 13.1
RR Per	022251	9.2	8.5	+ 9	+ 24	0	- 4	24.4	+ 14.9	+ 10.6	+ 16.1	+ 24.5	+ 8.6	- 1.2
RR Cep	022981	10.2	9.1	...	....	- 5	+ 5	.....						
U Ari	030614	8.0	7.5	- 37	- 34	- 20	- 40	56.2	- 1.3	- 30.5	- 47.2	- 11.6	- 58.9	- 10.5
S Tau	042410	10.2	9.5	+ 40	+ 36	- 71	+ 95	124.0	+ 72.7	- 11.2	+ 99.8	+125.9	+ 32.3	- 9.2
T Cam*	043066	8.0	6.9	- 2	+ 4	- 15	- 26	30.3	+ 23.5	+ 17.8	- 6.9	+ 3.4	+ 5.2	- 20.3
R Cae	$043\underline{738}$	7.9	7.6	....	....	- 32	- 10	.....						
T Lep	050122	8.3	8.0	- 4	- 13	+ 41	- 88	97.9	- 51.1	- 33.0	- 76.7	- 57.2	- 79.5	+ 19.5
U Ori	$0550\overline{20}$	6.3	5.8	- 21	- 22	- 13	- 11	27.8	+ 12.3	- 17.4	- 17.9	+ 10.6	- 32.3	- 10.4
R Lyn*	065355	7.9	7.2	+ 28	+ 32	- 50	- 22	63.3	+ 40.3	+ 46.8	+ 13.9	+ 19.3	+ 41.9	- 29.5
R Gem*	070123	7.1	6.3	- 41	- 43	- 4	- 4	43.3	+ 13.9	- 35.6	- 20.4	+ 17.9	- 19.2	- 10.3
V CMi	070209	8.7	7.8	+ 37	- 29	- 47	+ 45	71.3	+ 39.6	+ 33.3	+ 49.1	+ 50.9	+ 46.2	- 10 8

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TABLE VI (continued)

Star	Desig.	m	m'	R	R_ρ	T_α	T_ζ	W	$\dot{x}_e$	$\dot{y}_e$	$\dot{z}_e$	a	b	c
							GROUP 6 $350^d \leqslant P \leqslant 399^d$ (continued)							
RR Mon*	071201	9.4	8.5	+ 28	+ 14	- 8	- 36	39.5	+ 2.9	+ 16.6	- 35.7	- 22.5	- 11.5	[illegible]
R Cnc	084112	6.8	6.5	+ 32	+ 28	+ 3	- 12	30.6	- 18.7	+ 23.5	- 5.9	- 14.0	+ 5.9	[illegible]
W Cnc	090426	8.2	7.9	+ 49	+ 45	- 50	- 33	75.0	- 4.7	+ 74.1	- 10.2	- 33.4	+ 50.1	- 5.8
R LMi	094035	7.1	6.9	+ 10	+ 9	+ 12	+ 4	15.5	- 11.0	- 6.9	+ 8.5	+ 1.6	- 20.3	+ 12.5
W Vel	101254	8.8	7.9	....	....	- 39	+ 21	.....						
W Leo	104814	9.8	9.5	+ 54	+ 49	+101	+ 71	132.9	- 59.7	- 86.9	+ 80.9	+ 31.1	- 54.1	+109.2
R Com	115919	8.5	8.3	- 3	- 3	- 41	+ 14	43.4	+ 7.6	+ 41.0	+ 12.2	+ 4.3	+ 32.5	- 1.6
R Hya	132423	4.5	4.2	- 10	- 9	- 21	- 1	22.9	+ 0.5	+ 22.7	+ 2.6	+ 2.1	+ 11.4	+ 3.1
S Vir	132807	7.0	6.7	+ 10	+ 12	- 27	- 46	54.7	- 16.2	+ 22.6	- 47.1	- 43.2	- 13.5	- 5.5
W Hya	134328	7.2	7.0	+ 42	+ 47	- 93	-110	151.5	- 31.7	+ 88.0	-119.2	-134.3	+ 7.9	- 35.9
R Ser	154615	6.9	6.4	24	+ 22	+ 2	- 37	70.8	- 19.0	- 34.3	- 58.7	- 16.1	- 75.0	- 0.3
Z Sco	160021	9.2	8.1	- 52	- 49	- 13	- 32	60.0	+ 17.4	+ 56.1	- 11.9	- 16.0	+ 35.7	- 23.2
Y Sco	162419	11.3	10.0	....	....	+ 71	- 71	.....						
T Oph	162816	9.8	8.5	- 47	- 48	+ 16	- 4	50.7	32.3	+ 35.2	+ 17.0	+ 22.3	+ 32.4	- 19.5
RW Sco	170833	9.6	8.1	....	....	+ 28	+ 41	.....						
ST Sgr*	185613	9.0	7.8	+ 46	+ 39	- 3	- 17	42.6	+ 5.4	- 33.9	- 25.3	+ 9.5	- 50.8	- 5.8
V Lyr	190530	9.7	8.5	- 22	- 34	- 12	- 4	36.2	- 19.2	+ 23.1	- 20.2	- 24.7	- 1.1	+ 9.7
T Sgr*	191017	8.0	7.2	+ 2	- 2	+ 4	- 28	28.4	+ 0.4	- 11.8	- 25.9	- 14.3	- 11.9	- 8.3
RR Aql	195202	8.9	8.1	+ 11	0	- 51	-142	150.9	- 47.6	- 19.2	-141.9	-110.7	- 97.6	- 15.1
SY Aql	200213	9.4	8.7	- 68	- 76	-108	- 39	137.9	-126.5	+ 1.4	- 54.7	- 91.8	- 47.0	+ 90.8
W Aqr	204104	9.1	8.7	- 15	- 28	+ 13	- 78	84.0	- 12.1	+ 34.4	- 75.6	- 67.9	- 16.6	- 24.2
T Cep	210868	6.0	4.9	- 12	- 11	- 24	- 31	40.7	+ 1.7	- 34.4	- 21.8	+ 10.2	- 50.0	- 0.5
T Peg	220412	8.9	8.5	- 10	- 15	- 12	+ 99	100.8	- 36.7	+ 6.6	+ 93.7	+ 59.5	+ 36.2	+ 80.8
RV Peg	222130	9.9	9.4	- 32	- 32	+ 12	- 41	53.4	- 1.6	+ 13.9	- 51.5	- 35.3	- 22.0	- 19.2
R Peg	230210	7.8	7.4	+ 20	+ 19	+ 43	- 12	48.5	+ 30.9	+ 36.[illegible]	- 8.5	+ 2.5	+ 21.1	- 30.7
R Aqr	233816	7.5	7.3	- 22	- 23	+133	- 86	160.0	- 33.0	+135.7	- 76.4	-124.9	+ 71.4	- 21.9
W Cet*	235715	7.6	7.4	+ 13	- 13	- 5	0	14.3	+ 12.1	- 6.2	- 3.4	+ 16.5	- 15.7	- 5.5
							GROUP 7 $400^d \leqslant P \leqslant 449^d$							
T Cas	001855	7.9	7.3	- 12	- 7	+ 46	- 13	48.4	+ 3.6	+ 46.4	- 13.1	- 19.0	+ 25.1	- 10.7
R And*	001838	6.8	6.3	- 11	- 8	- 4	- 39	39.9	+ 17.9	- 2.5	- 35.6	- 6.8	- 26.8	- 26.0
RW And	004232	8.6	8.1	- 15	- 9	+ 25	- 20	33.2	- 1.6	+ 25.1	- 21.7	- 18.2	+ 2.2	- 6.5
S Psc	011208	9.6	9.2	....	....	- 4	+ 4	.....						
R Hor	025150	6.0	5.7	+ 60	+ 60	+100	+ 26	119.5	- 24.8	+113.1	- 29.5	- 75.4	+ 72.9	- [illegible].5
S Pic	050849	8.1	7.7	....	....	+ 24	+ 9	.....						
S Ori	052405	8.4	7.9	+ 22	+ 16	+ 19	- 28	37.4	- 16.7	+ 16.5	- 29.2	- 12.2	- 39.6	+ 9.2
U Aur	053632	8.3	7.7	+ 15	+ 16	+ 26	- 30	42.8	- 22.7	+ 32.1	- 16.9	- 26.1	+ 8.1	+ 12.6
U Lyn	063260	9.5	8.8	- 16	- 8	0	- 35	35.8	- 3.6	+ 25.0	- 24.4	- 21.6	+ 1.1	- 6.3
U CMi	073609	8.8	8.5	+ 56	+ 47	- 11	- 11	49.6	- 9.5	+ 48.5	- 3.8	- 19.0	+ 30.3	+ 5.0
U Her	162119	7.5	7.1	- 28	- 31	- 22	- 17	42.2	- 11.0	+ 31.2	- 26.2	- 28.9	- 4.4	- 1.4
RT Sco	165737	8.2	7.0	- 53	- 51	- 8	- 3	51.7	+ 3.9	+ 43.2	+ 28.1	+ 13.8	+ 41.7	+ 8.5
RT Oph	175211	9.6	9.0	- 40	- 51	- 27	- 24	62.4	- 25.4	+ 46.2	- 33.4	- 48.1	+ 12.6	+ 4.8
S Lyr*	190926	10.8	10.0	....	....	+ 26	- 42	.....						
R Cyg*	193450	7.5	6.4	- 25	- 26	+ 1	+ 9	27.5	- 8.6	+ 22.0	- 14.1	- 14.4	+ 2.2	+ 3.5
X Cyg	194733	5.2	4.4	- 2	- 3	- 9	- 15	17.6	- 5.5	- 8.9	- 14.2	+ 0.9	- 24.7	+ 5.3
RS Aql	195408	9.4	8.5	0	- 3	+ 17	- 11	22.1	+ 10.0	+ 17.3	- 9.6	+ 0.1	+ 1.8	- 10.0
SX Cyg	201231	9.0	7.0	- 8	- 11	- 9	- 23	27.0	- 6.3	+ 6.9	- 25.4	- 8.6	- 28.1	+ 0.3
S Ind	204955	8.2	7.8	....	....	+ 6	- 8	.....						
RS Peg	220714	9.3	8.9	- 28	- 32	+ 44	+ 61	81.8	- 19.7	+ 60.5	+ 51.4	+ 31.4	+ 69.2	+ 4.5
SS Peg	222924	8.3	8.0	- 17	17	+ 28	43	54.1	- 19.7	+ 38.6	+ 32.4	+ 7.7	+ 37.4	+ 32.1
R Cas	235351	7.0	6.5	+ 21	+ 24	+ 99	+ 18	103.4	+ 4.3	+ 98.9	+ 30.0	- 9.5	+ 91.6	+ 0.5
Y Cas	235855	9.8	9.2	- 12	- 1	+ 11	- 7	13.1	+ 5.2	+ 11.0	- 4.8	+ 4.2	- 1.8	- 2.5

TABLE VI (continued)

Star	Desig.	m	m'	R	R_ρ	T_α	T_δ	W	$\dot{x}_e$	$\dot{y}_e$	$\dot{z}_e$	a	b	c
						GROUP 8 $450^d \leq P \leq 612^d$								
S Cas*	011272	9.7	8.4	- 32	- 18	+ 8	+ 16	25.4	- 22.3	+ 1.2	- 12.2	- 10.3	- 16.5	+ 19.4
R Aur	050953	7.5	6.7	+ 8	+ 13	- 7	- 25	29.1	+ 12.9	+ 25.7	- 4.4	+ 1.4	+ 12.1	- 11.3
RU Aur	053338	9.5	8.6	- 38	- 34	+ 4	- 13	36.5	- 6.2	- 18.3	- 31.0	- 7.8	- 40.9	- 0.3
Z Tau	054716	9.8	9.2	....	....	0	+ 16	.....						
RU Tau	054716	10.4	9.8	....	....	- 40	- 95	.....						
V Cam	054974	9.9	8.7	....	....	- 13	+ 22	.....						
Z Pup	072820	8.1	7.6	+ 26	+ 17	0	- 16	23.3	- 3.9	+ 9.6	- 20.9	- 11.6	- 11.7	- 2.0
R Cen	140959	5.9	4.6	- 20	- 17	- 1	- 1	17.0	+ 7.5	+ 5.9	+ 14.1	+ 21.8	- 2.6	+ 5.0
R Nor	152849	7.0	5.2	....	....	- 1	- 7	.....						
RU Her	160625	8.0	7.7	- 25	- 30	- 47	- 33	64.7	- 35.1	+ 33.8	- 42.6	- 54.0	- 4.2	+ 11.7
W Aql*	191007	8.2	7.3	- 18	- 25	+ 45	0	51.4	+ 35.4	+ 37.1	+ 3.2	+ 12.8	+ 27.6	- 29.1
Z Sgr	191421	8.6	7.6	- 21	- 27	0	+ 36	45.0	- 3.9	+ 11.6	+ 43.3	+ 35.5	+ 20.3	+ 27.7
Y Del	203712	9.9	9.1	....	....	- 11	+ 11	.....						
V Del	204319	10.1	9.3	- 24	- 40	+ 77	+ 12	87.6	+ 31.1	+ 81.9	- 1.6	- 12.6	+ 64.8	- 33.9
RX Vul	204923	10.1	9.3	....	....	- 6	- 77	.....						
UX Cyg	205130	9.7	8.7	- 6	- 14	- 17	+ 4	22.4	- 22.1	- 1.1	- 3.5	- 2.8	- 14.8	+ 23.6
X Cep	210483	9.4	8.1	+ 21	+ 30	+ 78	+ 88	121.3	- 5.6	+114.0	+ 41.1	- 12.9	+109.1	+ 12.0
Z Cas	234056	10.0	9.2	- 32	- 15	+ 77	- 24	82.0	+ 18.3	+ 75.7	- 25.8	- 34.0	+ 46.7	- 33.9
						CARBON STARS $252^d \leq P \leq 590^d$								
W Cas	004958	8.8	7.9	- 39	- 27	- 41	+ 3	49.1	- 7.8	- 43.6	- 21.3	+ 10.2	- 58.8	+ 9.3
X Cas	015059	10.1	9.0	- 55	- 33	+ 12	+ 12	37.1	- 29.7	- 2.0	- 22.0	- 19.9	- 25.1	+ 21.5
R For	022527	8.9	8.7	+ 30	+ 27	+ 74	+ 63	100.8	- 1.5	+ 90.6	+ 44.2	+ 1.4	+ 90.2	+ 15.0
Y Per	032144	8.4	6.5	- 9	- 3	- 2	0	3.7	+ 0.1	- 3.0	- 2.1	+ 10.1	- 13.4	- 5.3
R Ori	045408	9.6	8.8	+ 36	+ 28	+ 74	- 11	79.9	- 62.6	+ 49.2	- 7.0	- 47.8	+ 23.7	+ 49.4
R Lep	045515	6.8	6.5	+ 32	+ 27	+ 13	- 18	34.9	- 6.5	+ 24.1	- 24.4	- 22.0	- 0.6	- 3.9
S Aur	052034	9.0	7.8	+ 3	+ 6	- 30	- 51	59.5	- 23.8	+ 38.3	- 38.8	- 47.7	+ 3.6	+ 2.9
S Cam	053069	8.2	7.0	- 13	- 6	- 9	- 27	29.1	+ 11.9	+ 21.6	- 15.4	- 5.2	+ 3.1	- 15.1
V Aur	061648	9.2	8.4	+ 6	+ 13	+ 4	- 26	29.3	- 6.9	+ 27.6	7.9	- 11.0	+ 10.0	+ 3.0
R CMi	070310	8.0	7.1	+ 48	+ 41	- 28	- 2	49.6	+ 15.8	+ 46.7	+ 5.3	+ 0.6	+ 35.3	- 12.5
T Lyn	081634	9.2	8.8	+ 6	+ 2	+ 16	- 53	55.3	- 30.6	+ 15.8	- 42.9	- 44.3	- 18.4	+ 9.8
V Hya	104721	6.4	6.0	- 15	- 15	- 34	- 9	38.2	+ 27.0	+ 25.9	- 3.1	+ 8.9	+ 14.6	- 23.5
SS Vir	122001	6.8	6.4	+ 2	+ 3	- 16	+ 46	48.8	- 3.3	+ 15.7	+ 46.1	+ 36.3	- 24.9	+ 27.9
RU Vir	124205	10.0	9.8	+ 2	+ 7	+ 16	-237	237.7	- 23.2	- 20.6	235.7	-168.1	-139.4	- 83.2
RV Cen	133156	7.7	7.3	....	....	- 11	+ 26	.....						
V CrB	154640	7.5	7.2	-115	-118	- 10	- 45	126.6	+ 42.3	+ 45.3	-110.1	- 73.1	- 17.1	- 89.1
V Oph	162112	7.5	6.1	- 37	- 37	+ 20	+ 3	42.1	+ 33.0	+ 23.8	+ 10.7	+ 23.6	+ 18.6	- 21.9
T Dra	175558	9.6	9.1	- 23	- 25	- 24	+201	203.9	- 19.9	+184.5	+ 84.5	- 27.4	+189.6	+ 34.4
U Lyr	191738	9.5	9.1	- 3	- 17	+ 6	+ 24	30.0	- 3.5	+ 28.5	+ 8.6	+ 1.9	+ 19.0	+ 8.6
R Cap	200015	10.6	9.7	....	....	+ 79	- 24	.....						
WX Cyg	201537	9.7	7.9	- 32	+ 26	+ 13	- 25	38.3	+ 30.7	- 22.6	- 4.2	+ 32.2	- 28.2	- 19.4
U Cyg	201548	7.2	5.6	+ 10	+ 9	+ 15	+ 10	20.1	+ 11.7	+ 9.5	+ 13.3	+ 21.5	+ 5.8	+ 0.3
V Cyg	203848	9.1	7.5	+ 3	+ 2	+ 9	- 12	15.2	+ 13.5	- 2.2	- 6.6	+ 12.7	- 13.4	- 8.7
S Cep	213678	8.3	7.0	- 34	- 28	+ 41	+ 18	52.8	+ 5.1	+ 46.9	- 23.7	- 26.5	+ 21.0	- 16.4
RZ Peg	220133	8.8	8.1	- 27	- 28	+ 12	+ 4	30.7	- 16.4	+ 23.1	- 11.9	- 17.4	- 3.9	+ 16.8
ST And	233435	8.8	8.2	+ 32	+ 39	+ 24	- 43	62.7	+ 58.9	+ 17.4	- 12.6	+ 21.9	+ 5.7	- 53.7

EXPLANATION OF COLUMN HEADINGS

*	after the star's name identifies an S-type star
Design.	equatorial coordinates for 1900.0: first 4 figures are hours and minutes of R. A., the last two are degrees of Decl.; negative declinations are underlined
m	apparent mean maximum visual magnitude
m'	m, corrected for interstellar absorption
R	radial velocity of star relative to the sun
R_ρ	R - P, radial velocity corrected for galactic rotation
T_α, T_δ	tangential motion relative to sun in R. A. and Decl.
W	space velocity of the star relative to the sun
$\dot{x}_e$, $\dot{y}_e$, $\dot{z}_e$	components of W in Equat. coord. system
$a = \dot{y}_g - 9.8$,	positive toward $l^{II} = 148°$, away from gal. cntr.
$b = \dot{x}_g + 10.2$,	positive toward the galactic longitude $l^{II} = 58°$
$c = \dot{z}_g + 5.9$	positive toward the galactic North Pole ($\dot{y}_g$, $\dot{x}_g$, $\dot{z}_g$ are space velocity components referred to the sun in the galactic coordinate system)
a, b, c	space velocity components referred to the circular velocity around the galactic center

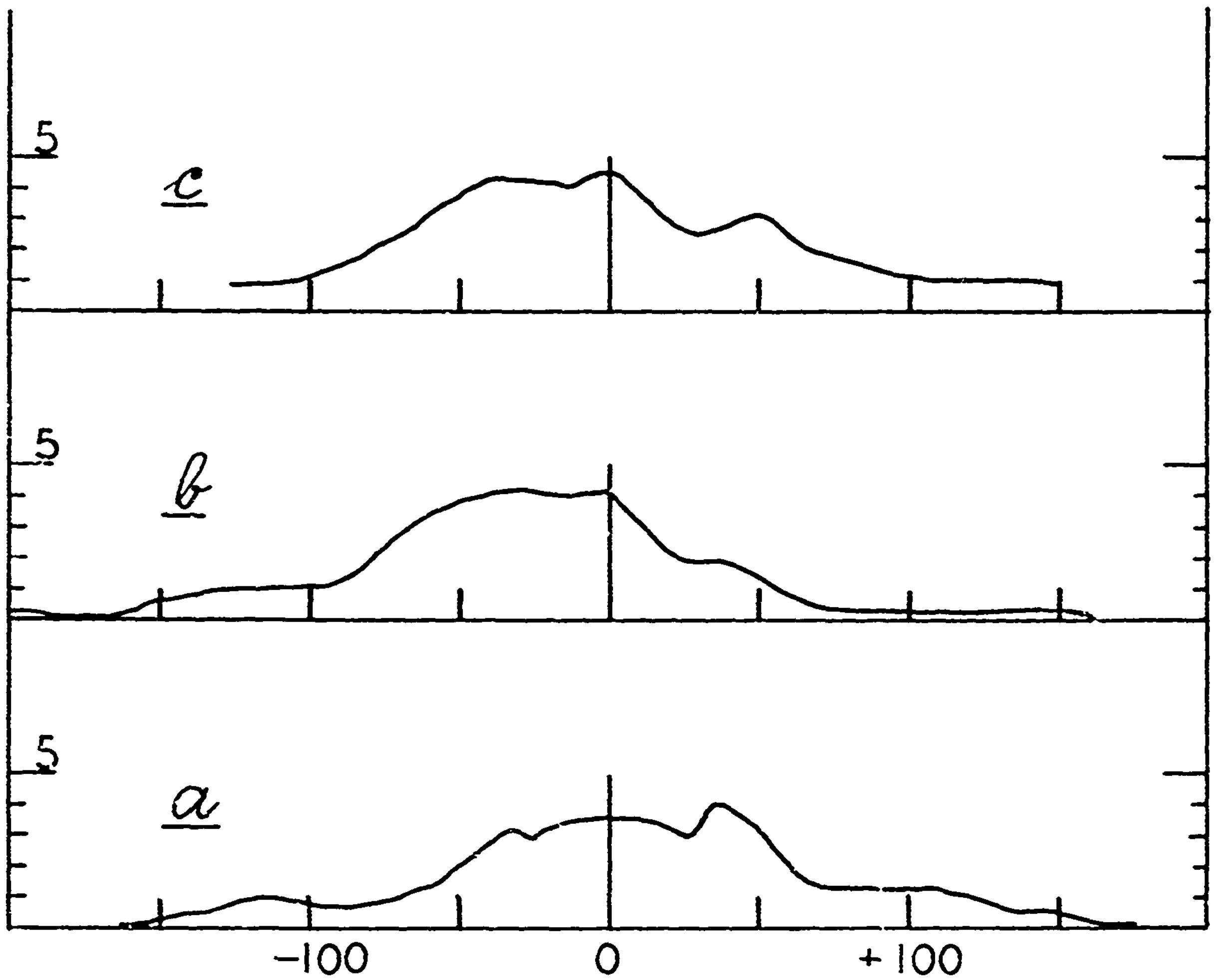

Fig. 6. Smoothed frequency distribution of velocity vector points along a, b, c axis.
Group 1, 3, 4 combined.
Abscissa - velocity in km/sec
Ordinate - frequency number

In Figures 6 and 7 the smoothed frequency distribution of the vector points along the axes a, b, and c is pictured. Group 2 and the Carbon stars include too few stars to show any definite trend. However, two other groupings with over one hundred stars in each show marked differences: the distributions in Figure 6 for the combined groups 1, 3, 4 with P<300 days show much flatter and less definite maxima along all the axes than do the combined groups 5-8 in Figure 7 with P>300 days.

VII *Intercomparison of Space Velocities and Dispersions of Mira Variables with those of other Stars.*

Besides Wilson and Merrill (1942) the space velocities of Mira variables have been studied by P. G. Kulikovsky (1948), and V. S. Safronov (1955): Mira-type S stars by J. Ikaunieks (1950), and Carbon stars by J. Ikaunieks (1952) and K. Ishida (1960).

In some cases a direct comparison is easier since the same or similar procedures have been followed in the reductions. It is for this reason that the results by Kulikovsky, Safronov and Ikaunieks have been included among ours in Table VII. Our numerical values for the space velocities and dispersions agree satisfactorily with theirs except for the ā component in which case our solution is about 30 km/sec larger for variables with periods less than 300 days and about 15 km/sec larger for those with periods more than 300 days. The exceptionally high absolute magnitude and the large space velocity of the second group,

TABLE VII

SPACE VELOCITIES AND THEIR DISPERSIONS OF MIRA VARIABLES

Grp	$\bar{P}$	No. of Stars	Velocity in km/sec: $\bar{a}$ ± p. c.	wt.	$\bar{b}$ ± p. c.	wt.	$\bar{c}$ ± p. c.	wt.	Dispersion, km/sec: $\bar{\sigma}_y$	$\bar{\sigma}_x$	$\bar{\sigma}_z$
1	128	11	+22.1 ± 9	0.6	− 26.9 ± 9	0.3	− 8.4 ± 9	0.3	± 46	± 46	±45
2	174	24	+64.2 ±11		−103.7 ±10		−26.3 ± 9		± 82	± 74	±65
Safronov (1955)	167	7	+34 ±56		− 86 ±47		− 7 ±29		±136	±114	±72
3	224	42	+18.4 ± 9	0.6	− 35.7 ± 8	0.4	+ 7.7 ± 7	0.5	± 83	± 74	±64
4	272	56	+18.8 ± 7	1.0	− 20.6 ± 5	1.0	− 5.3 ± 5	1.0	± 82	± 50	±51
Mean: 1+3+4	239	(total) 109	+20 ± 5		− 25 ± 4		− 3 ± 4		± 79	± 59	±55
Kulikovsky (1948)		93	− 4		− 13		− 2				
Safronov (1955)	237	36	− 9 ±11		− 15 ± 7		+ 3 ± 7		± 62	± 43	±44
5	323	63	+10.3 ± 5	1.0	− 22.4 ± 4	1.0	− 4.8 ± 3	0.5	± 54	± 42	±32
6	375	37	− 3.5 ± 5	1.0	− 11.9 ± 6	0.5	− 1.4 ± 4	0.25	± 42	± 52	±32
7	419	19	+14.7 ± 5	1.0	− 13.3 ± 4	1.0	+ 1.0 ± 2	1.0	± 35	± 22	±12
8	512	12	+16.3 ± 8	0.4	− 6.2 ± 5	0.6	− 1.0 ± 4	0.25	± 40	± 23	±21
Mean: 5-8	369	(total) 131	+ 8 ± 3		− 15 ± 2		− 2 ± 1		± 47	± 40	±28
Kulikovsky (1948)		40	−12		− 2		+ 6				
Safronov (1955)	373	64	− 5 ± 7		− 5 ± 5		0 ± 5		± 35	± 28	±25
C	405	24	+ 5.1 ± 7		− 12.1 ± 6		− 6.2 ± 4		± 54	± 42	±31
Ikaunieks (1952)		11	−11 ± 4		+ 30 ±12		− 2		± 45	± 31	±43
Sc	362	20	− 3.4 ± 5		− 7.2 ± 4		−12.0 ± 2		± 29	± 23	±15
Ikaunieks (1950)	363	17	− 5.1		− 1.6		− 9.6		± 25	± 17	±20

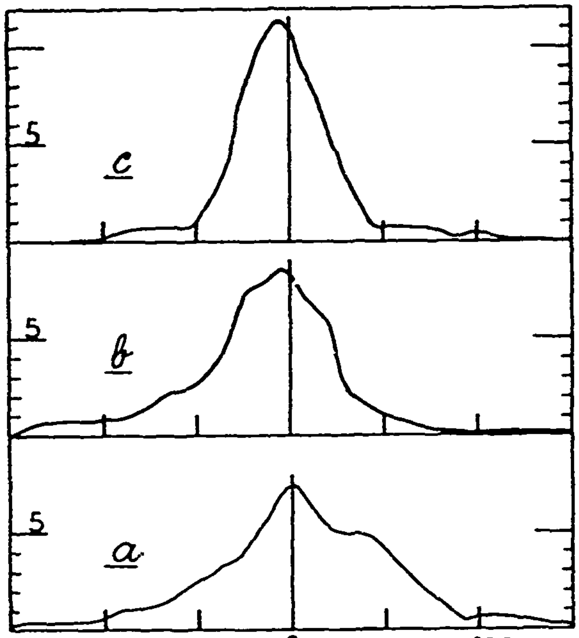

Fig. 7. The same as Fig 6 except that this is for Groups 5 - 8.

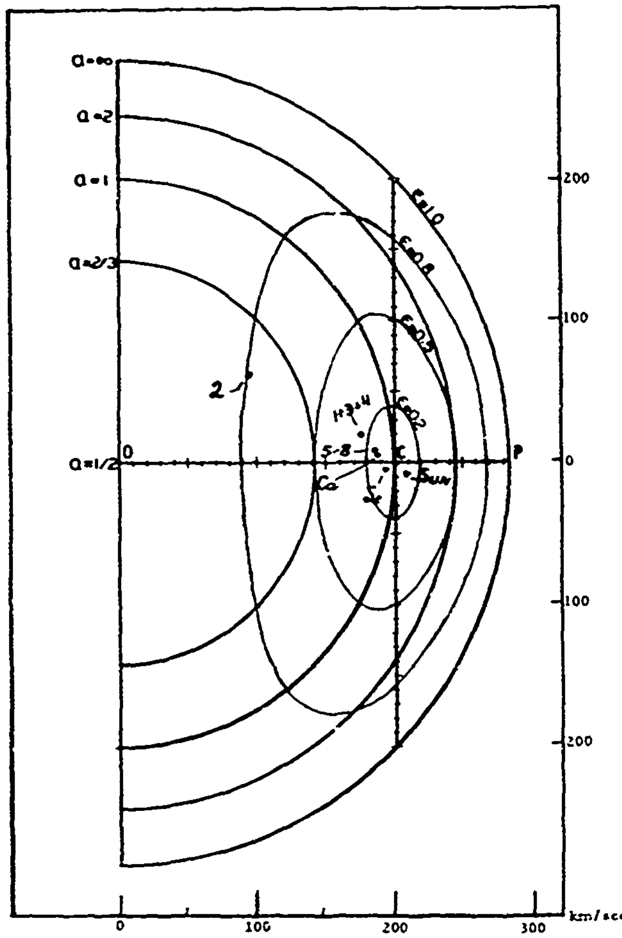

Fig. 8. The Haas-Bottlinger velocity-vector diagram. This diagram is in the galactic plane with the direction to the galactic center down and the direction of rotation to the right The groups are the same as in Table VII

149<P<200 days, remain as in previous studies. The large radial velocities in this group apparently cause these results.

It seems that the best comparison of our results with those of Wilson and Merrill (1952, Table 12) can be made for the group motions referred to the sun. For the stars with P<300 days their value is 53.6 km/sec, and ours is 63.6 km/sec; for the stars with P>300 days their value is 28.2 while ours is 31.8.

Ishida's (1960) dV = +5.4 km/sec for 32 Carbon stars is comparable with our $\bar{\Theta}$ component which is —12.1 while Ikaunieks obtained +30 km/sec. The large scattering apparently is caused by the small number of stars in all 3 papers.

It is no surprise that for Se stars our results agree so well with Ikaunieks' (1952) results since 14 variables are common to these two determinations.

It is interesting to analyze our results in the way suggested to us by Dr. Vyssotsky, as outlined in his summarizing article (1957). The position of group 2 in the Haas-Bottlinger diagram (Figure 8) indicates the high eccentricity of the orbits described by the stars in this group. In addition, this group lags behind the galactic rotation much more than any other group. Further, the projections of the velocity-vector points on the galactic plane (Figures 2 and 3) indicate a high orbital inclination for variables with period <300 days and a low inclination for those with P>300 days. Also, the deviation of the vertex from the direction to the galactic center and the smaller group velocity indicates that the variables with P>300 days stay closer to the galactic plane. However, the division at 300 days is only an arbitrary one, since we do not know whether there is any sudden break in the periods of Mira variables whose orbital inclinations are high or low. A more definite answer to this might be sought in the spectra of variables with periods between say, 275 and 325 days. Another task is to affirm or disprove the large radial velocities in the 150-200 day period-group by selecting as many variables as possible with periods from the shortest ones up to 225 days and by determining their radial velocities.

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